

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES
BUREAU OF AGRICULTURE



TWENTY-FIFTH ANNUAL REPORT OF THE BUREAU OF AGRICULTURE

Division of Publications
FOR THE

FISCAL YEAR ENDING DECEMBER 31, 1925

STANTON YOUNGBERG
DIRECTOR OF AGRICULTURE



MANILA
BUREAU OF PRINTING
1926

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Division of Publications

TWENTY-FIFTH ANNUAL REPORT OF THE
BUREAU OF AGRICULTURE

SIR: I have the honor to submit the following annual report of the Bureau of Agriculture for the year ending December 31, 1925.

AGRICULTURAL CONDITIONS:

Palay, sugar cane, coconuts, maguey, and coffee yielded during the year under review the largest crops ever gathered in this Archipelago. All other crops and by-products registered decreases ranging from 3 to 24 per cent as compared with the preceding year 1924, and some showed slight decreases, too, in the area cultivated, generally because of unfavorable weather, and the attacks of plants pests during that year and the year before.

September, 1924, was extraordinarily dry and was preceded and followed by two months of continuous heavy rains and by floods occasioned by typhoons in and around the Islands, which conditions combined damaged about 5 per cent of the total area planted to all crops as against 16 per cent in 1924, while the prevalent plant diseases damaged this year about 2 per cent of the total crops planted as against 1 per cent the year before.

However, the farmers found compensation in the prices, for most crops were disposed of at higher rates than in 1924.

The following table shows for 1903, and from 1910 to 1925, the combined area planted to the six leading crops of the Islands—"palay" (rough rice), sugar cane, coconuts, abaca, corn, and tobacco, with their aggregate value since 1910; the average value of production per capita, and the average value of production per hectare. Table II shows for 1903, and from 1918 to 1925, the total population of the Islands, the area planted to the leading crops and the area per capita.

¹ To conform to the crop seasons of the different products, the crop statistics given everywhere in this report are, however, for years ending June 30.

TABLE I

Years	Area in hectares	Value	Average value of production per capita	Average value of production per hectare
1903.....	1,170,100			
1910.....	2,266,630	P137,005,950	P15	P61
1911.....	2,148,240	152,501,510	17	71
1912.....	2,303,870	148,347,500	16	64
1913.....	2,361,480	188,633,736	18	71
1914.....	2,679,950	163,496,250	17	63
1915.....	2,522,210	159,055,330	16	63
1916.....	2,631,700	179,241,380	18	71
1917.....	2,691,410	244,179,470	24	91
1918.....	2,918,590	351,940,450	35	124
1919.....	2,974,920	458,698,580	44	154
1920.....	3,276,940	687,181,500	64	210
1921.....	3,518,590	403,258,250	37	115
1922.....	3,429,750	302,143,710	27	88
1923.....	3,495,440	380,194,710	33	109
1924.....	3,516,200	434,754,470	37	124
1925.....	3,608,140	483,712,230	41	138

TABLE II.—Area planted in hectares

Years	Palay	Corn	Sugar cane	Coconut	Abaca	Tobacco	Total
1903.....	592,766	107,980	71,885	148,245	217,810	31,417	1,170,103
1918.....	1,368,140	418,380	205,610	335,600	512,510	78,440	2,918,590
1919.....	1,381,340	430,710	200,260	373,250	515,560	73,860	2,974,920
1920.....	1,484,890	537,130	197,400	357,030	559,360	101,120	3,276,930
1921.....	1,673,380	543,830	241,940	417,960	548,090	90,880	3,518,580
1922.....	1,661,430	549,960	240,820	422,680	494,990	59,870	3,429,750
1923.....	1,675,870	557,690	227,290	456,830	513,420	64,780	3,495,830
1924.....	1,737,910	533,230	227,190	460,440	485,340	72,090	3,616,200
1925.....	1,725,500	522,380	239,470	472,050	477,110	71,630	3,608,140

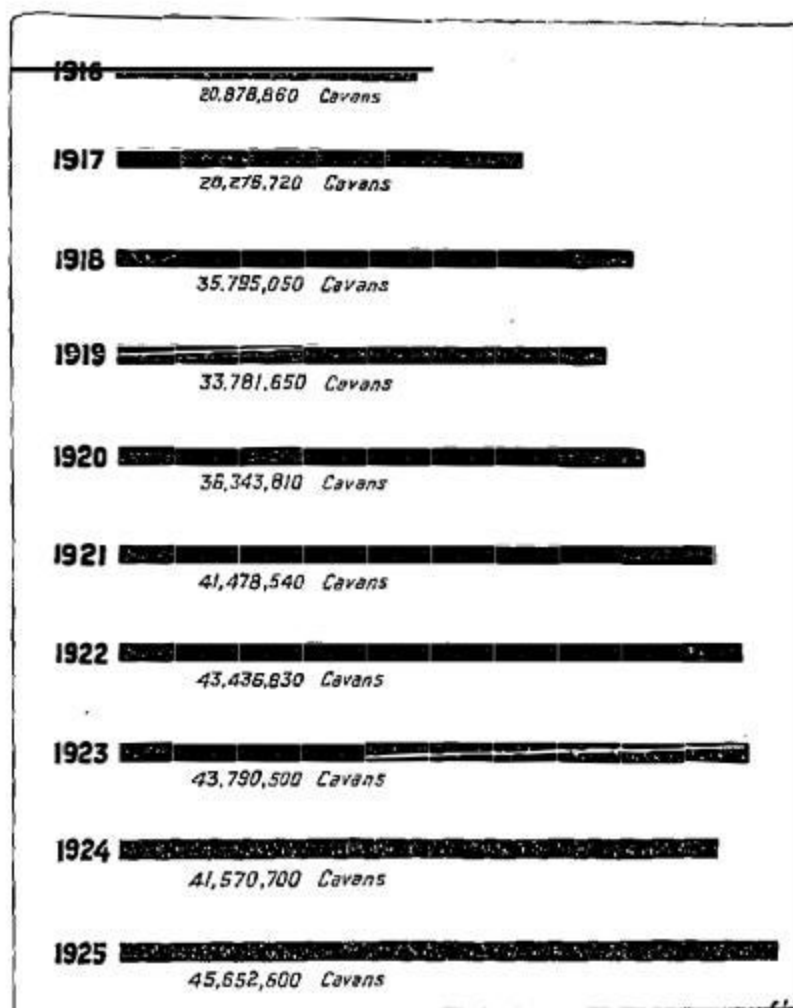
Number of hectares per capita

Years	Population	Palay	Corn	Sugar cane	Coconuts	Abaca	Tobacco	Total
1903.....	7,636,426	.0776	.0142	.0094	.0194	.0285	.0041	.1532
1918.....	10,314,310	.1326	.0406	.0199	.0325	.0497	.0076	.2829
1919.....	10,551,539	.1309	.0408	.0190	.0353	.0489	.0070	.2819
1920.....	10,794,223	.1376	.0498	.0183	.0367	.0518	.0094	.3036
1921.....	11,042,490	.1515	.0492	.0219	.0379	.0496	.0082	.3183
1922.....	11,296,467	.1471	.0387	.0213	.0374	.0438	.0053	.3036
1923.....	11,556,286	.1450	.0483	.0197	.0395	.0444	.0056	.3025
1924.....	11,822,081	.1470	.0451	.0192	.0389	.0410	.0061	.2974
1925.....	11,847,899	.1456	.0441	.0202	.0398	.0403	.0060	.2960

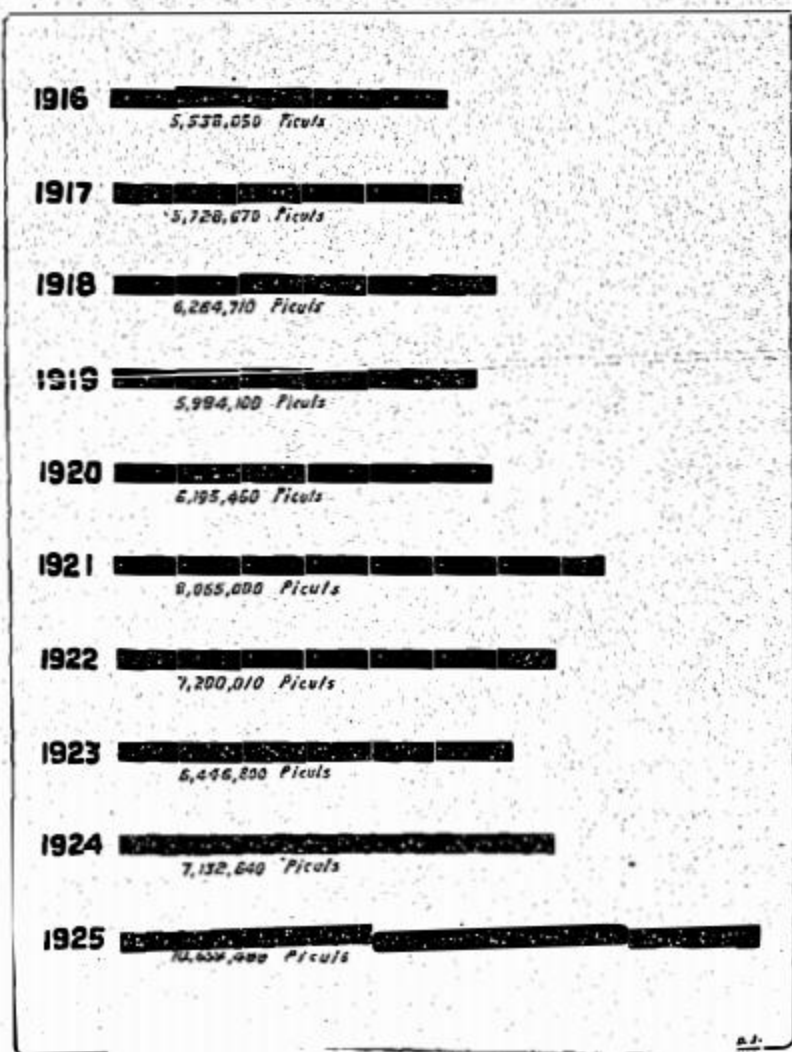
PALAY (ROUGH RICE)

Breaking the previous record crop of 1923 by 4 per cent, 1,725,500 hectares were planted to this staple during 1925 and the yield was 45,652,600 cavans of palay valued at P192,179,270 in the municipal markets.

This crop was 1 per cent smaller in area but 10 per cent larger in yield and 11 per cent greater in value than for 1924, when the corresponding figures were 1,737,910 hectares, 41,570,700 cavans and P172,957,290, respectively. It would



Graph showing production of ROUGH RICE (PALAY) in cavans from 1916 to 1925



Graph showing production of SUGAR in piculs from 1916 to 1925

have been still larger had it not been for the destruction of many seedlings by extraordinary floods during July and August, 1924, which seedlings could not be replaced because of shortage thereof in some cases and because of the unusual drought during September, in others. The rains of October and November, however, helped the damaged plantations considerably giving an increase in production, as stated above.

The average yield per hectare in 1925 was 26.46 cavans against 23.92 in 1924 or an increase of 11 per cent, and the average prices were ₱4.21 per cavan during 1925 and ₱4.16 in 1924. Of the total area planted, it is estimated that about 29 per cent was upland palay and 71 per cent, lowland; and the corresponding yields were 10,916,600 and 34,736,000 cavans, respectively.

Sulu, Masbate, Palawan, La Union, Nueva Vizcaya, Camarines Sur, Ilocos Norte, Rizal, Bataan, and Camarines Norte, registered increases of above 25 per cent over their production in 1924, while Batanes, Occidental Negros, and Antique had decreases of over 10 per cent of their last season's crop.

The rice producing provinces like Nueva Ecija, Pangasinan, Tarlac, Pampanga, and Bulacan registered also increases, their combined production during 1925 being 19,506,000 cavans of rough rice, against 17,573,260 cavans in 1924, or an increase of 11 per cent.

SUGAR CANE

With a total area slightly less than of that planted in 1921, the largest on record, the sugar crop of these Islands recorded this year the substantial increase of 32 per cent over the largest crop ever gathered before—that of 1921.

The area planted for 1925 was 239,470 hectares and gave 10,659,480 piculs of sugar, 521,030 piculs of panocha, 4,833,860 liters of molassees, and 4,315,210 liters of *basi*, all together valued at ₱112,729,900. Compared with the yield for 1924 when the area planted was 227,190 hectares and the production was 7,132,640 piculs of sugar, 456,100 piculs of panocha, 2,976,550 liters of molasses, and 3,880,570 liters of *basi*, valued altogether at ₱105,667,180. This shows a remarkable increase in a single year of 49 per cent in the production of sugar, 14 per cent in the production of panochas, 62 per cent in the production of molasses, and 11 per cent in the production of *basi*.

This increase was however registered mostly in the provinces where sugar centrals are established, for said provinces produced

in 1925, 54 per cent more than in 1924, while in the remaining provinces the increase was only 14 per cent.

There was also a notable increase in the average yield of sugar per hectare in the Philippine Islands in 1925 as compared with that for 1924. These averages were 47 and 33 piculs, respectively, or 42 per cent more. Here again it was only in the places in and around the sugar centrals, where the farmers averaged 58 piculs per hectare in 1925 against 38 piculs in 1924, that there was progress. In other places the average yield remained unchanged—around 21 piculs per hectare.

In spite of these increases there was only a slight advance in the total value of this crop, because of a considerable fall in prices. During the year 1925, the average prices were ₱11. per picul of centrifugal sugar; ₱7.35 per picul of muscovado; ₱8.39 per picul of panochas; ₱0.09 per liter of molasses; and ₱0.15 per liter of basi. The prices were ₱15.93 for centrifugal; ₱10.69 for muscovado; ₱9.50 for panochas; ₱0.14 for molasses; and ₱0.17 for basi, in 1924.

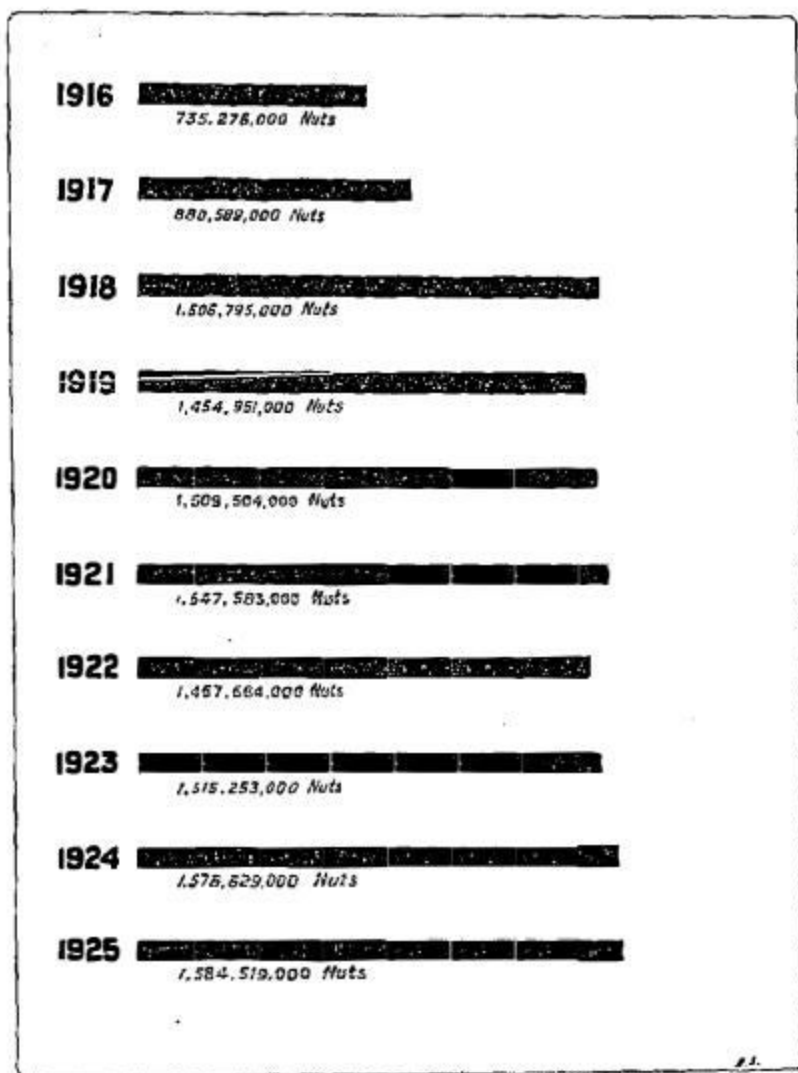
COCONUTS

During the year there were over 2,000,000 trees newly planted and the number of trees in bearing increased by 2,000,000 over those in 1924, whereby the production of nuts increased by .5 per cent but the yield of copra and tuba decreased by 6 and 24 per cent, respectively.

This is the result of the loss sustained by the groves last year on account of unfavorable weather and of pests and diseases, it being estimated that the former damaged 16 per cent of the total trees planted and the latter, 2 per cent.

The total number of trees for 1925 was 89,637,770, of which, 53,165,880 were in bearing, and 449,200 were used for the production of tuba, while the remainder were young trees. The corresponding figures for 1924 were 87,460,000, 51,154,600, and 540,460, respectively.

The total production was 1,584,519,000 nuts, of which about 110,678,000 were sold fresh for the table or were desiccated for exportation and the remainder turned into copra and coconut oil, yielding 5,726,800 piculs and 1,993,450 liters, respectively. With the exception of coconut oil, of which there was 7 per cent more than for 1924, the remaining products suffered reductions, especially *tuba*. The figures of production for 1924 were 1,576,629,000 nuts, which yielded 6,119,150 piculs of copra



Graph showing production of COCONUTS from 1916 to 1925


1916 
2,416,120 Piculs

1917 
2,544,720 Piculs

1918 
2,636,160 Piculs

1919 
2,345,310 Piculs

1920 
2,609,980 Piculs

1921 
1,713,100 Piculs

1922 
1,913,770 Piculs

1923 
2,986,380 Piculs

1924 
3,125,450 Piculs

1925 
2,853,570 Piculs

23.

Graph showing production of HEMP (ABACA) in piculs from 1916 to 1925

and 1,865,770 liters of oil and the remainder, or 45,588,000 nuts were sold fresh. The production of tuba was 87,252,230 liters in 1925 against 114,581,800 liters in 1924.

Coconut growers found, however, some compensation for their losses in production in the higher prices paid to them for their product. The prices for 1925 and 1924 were for copra, ₱10.47 and ₱9.39 per picul; for coconut oil, ₱0.43 and ₱0.41 per liter; for tuba ₱0.08 and ₱0.07 per liter, and for nuts, ₱3.46 and ₱3.57 per hundred. The total value of coconut products was ₱71,847,980 in 1925, against ₱68,134,370 in 1924, or 5 per cent increase.

ABACA

This crop also registered a reduction both in the total area planted to and in the production of fiber because of the extraordinary floods and typhoons during the preceding year. Not less than 25 per cent of the area planted then was damaged, and that caused a reduction of 8 per cent in the yield for 1925.

The area planted in 1925 was 477,110 hectares against 485,340 hectares in 1924. The corresponding productions were 2,853,570 and 3,125,450 piculs, respectively. There was, however, the big jump in prices of from ₱13.82 per picul in 1924 to ₱22.53 per picul in 1925, the planters thus receiving over ₱21,000,000 for a smaller crop this year than for a larger one the year before. The total value for 1925 was ₱64,296,240.

Leyte, Albay, and Samar, the provinces that lead in the production of abaca, suffered the greatest reductions, their combined yield in 1924 having been 1,671,370 piculs while this year they had only 1,259,280 or a loss of nearly 25 per cent.

CORN

Corn growers were particularly unfortunate this year, for they were not only unable to replant the areas destroyed and so had a smaller crop because of too much water at first and then too much drought, but they also got prices lower than those paid the year before.

The total area planted to corn during 1925 was 522,380 hectares and the yield was 7,606,110 cavans, which brought the farmers ₱30,767,250 at the rate of ₱4.04 per cavan. Compared with the results obtained in 1924, when the 533,230 hectares under cultivation gave 7,830,320 cavans worth ₱33,303,960, at ₱4.25 per cavan, the losses were 2 per cent

in the area planted, 3 per cent in the volume of the crop, 8 per cent in the total value, and 7 per cent in the price per cavan.

Bulacan, Zamboanga, Nueva Vizcaya, Pampanga, Laguna, Batanes, Masbate, Occidental Negros, and Palawan, suffered reduction ranging from 25 to 46 per cent as compared with the previous year's crop.

TOBACCO

Practically the same area was planted to tobacco as in 1924, but the yield was 8 per cent smaller in 1925 because of unfavorable weather, being but 910,910 quintals of tobacco leaf as against 941,800 quintals the preceding year.

There was a rise of 83 centavos in the price per quintal, that is, from ₱12.22 the year before to ₱13.05 this year, and this made the value of both crops almost equal, for it was ₱11,505,420 in 1924 and ₱11,891,590 in 1925.

Among the leading tobacco-producing provinces, Cagayan, Cebu, and Isabela had the greatest decrease, their combined production having been only 459,010 quintals this year as against 510,970 the year preceding, or 10 per cent less. Ilocos Norte and Pangasinan, on the other hand, enlarged the combined area of their tobacco plantations by 14 per cent and their yield advanced 8 per cent. Together, they harvested this year 174,610 quintals and in 1924, 161,670.

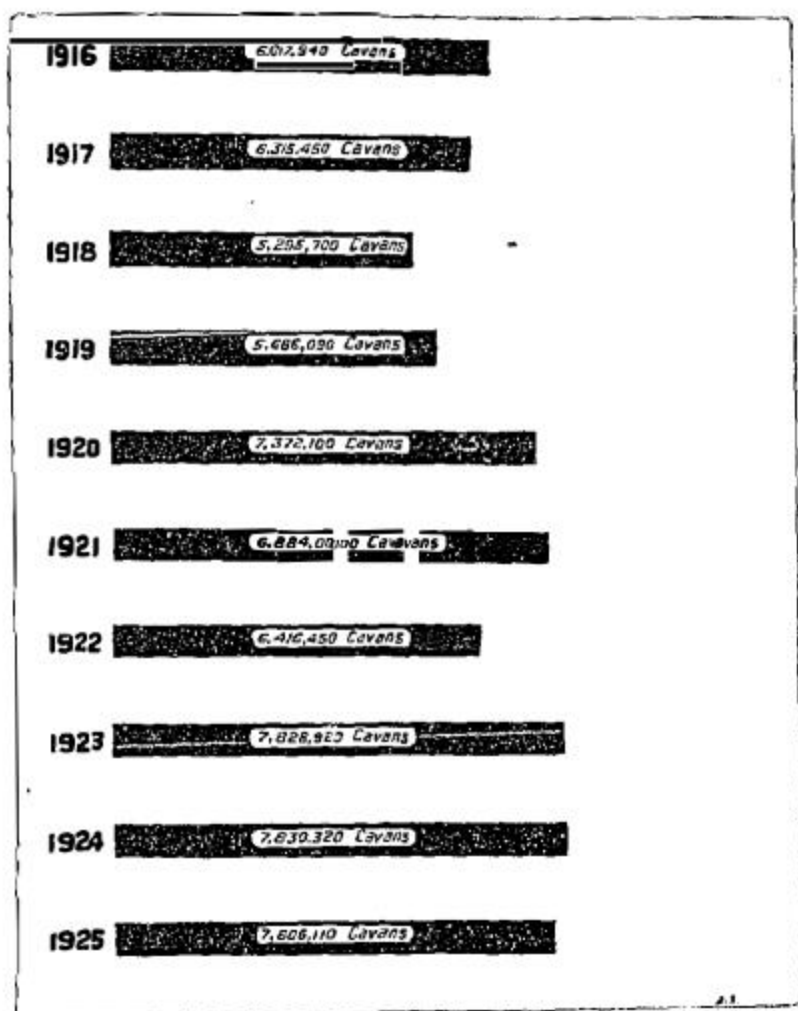
MAGUEY

The cultivation of this fiber is of late again attracting the interest of farmers, judging by the steady increase that the area planted thereto is registering every year. It is, however, confined to a few provinces, and these are principally the provinces where abaca is not cultivated.

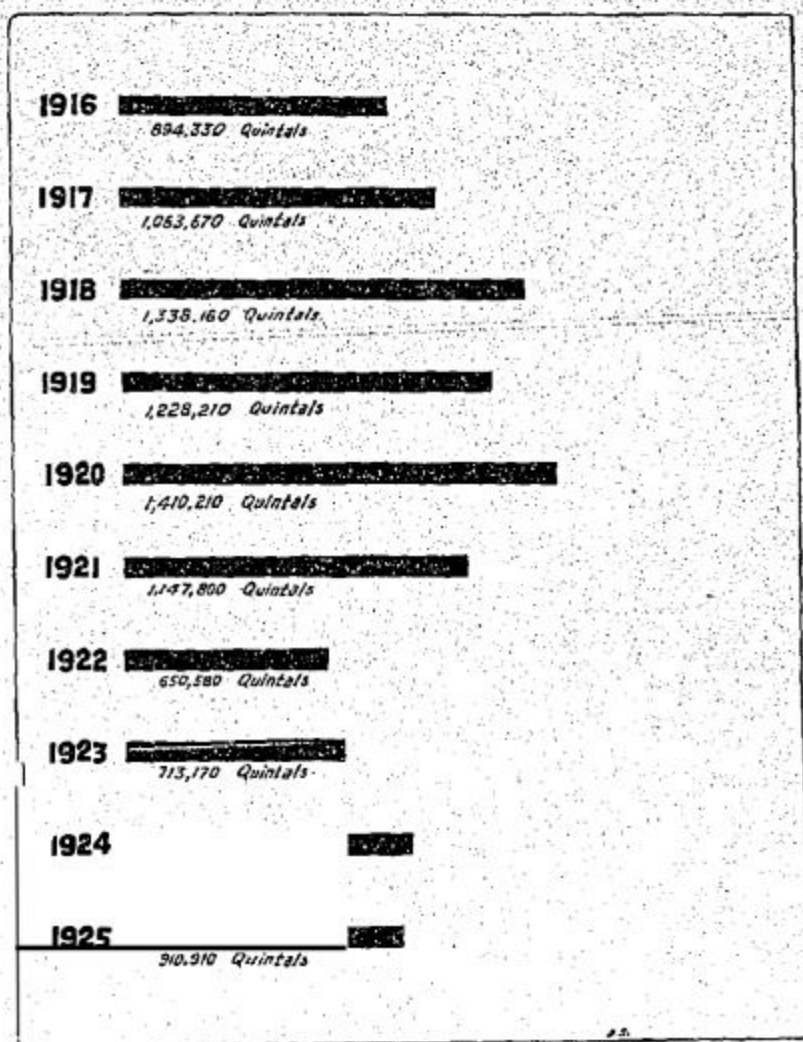
The area planted in 1925 was 31,100 hectares, or 6 per cent larger than that for 1924, and yielded 456,000 piculs of fiber. This yield was 3 per cent larger than that for 1924, which was 443,010 piculs, and the average price per picul rose so high that the total value of the crop jumped from ₱3,649,140 in 1924 to ₱5,682,530 in 1925, or 56 per cent.

CACAO AND COFFEE

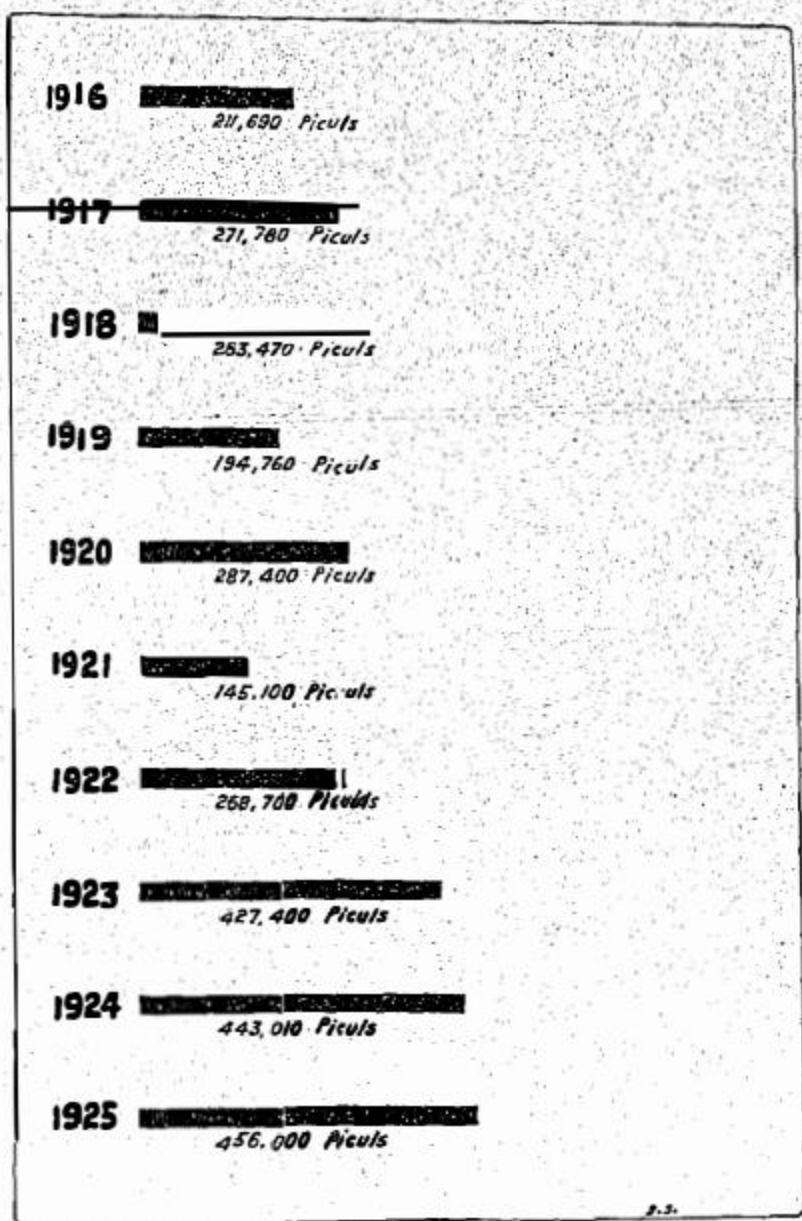
These two crops showed increases this year in the number of trees planted as well as in the respective production as compared with 1924. On June 30, 1925, there were 2,000,350 cacao trees, and 2,335,600 coffee trees and during said year the production was 1,111,900 and 1,178,200 kilos, respectively. Dur-



Graph showing production of CORN in cavans from 1916 to 1925



Graph showing production of TOBACCO in quintals from 1916 to 1925



Graph showing production of MAGUEY in piculs from 1916 to 1925

ing the year 1924, the production of cacao was 1,160,800 kilos and that of coffee 1,173,600 kilos, with 1,969,400 and 2,259,400 trees, respectively under cultivation.

The prices for these products are slightly but steadily rising every year due to the increasing consumption and the insufficient local supply. The prices paid during 1924 and 1925 were ₱1.40 and ₱1.70 per kilo for cacao and ₱0.69 and ₱0.71 per kilo for coffee, respectively. The values were ₱1,189,100 in 1925 against ₱1,206,600 in 1924 for cacao; and ₱836,300 in 1925 against ₱806,900 in 1924 for coffee.

LIVESTOCK

On account of the impossibility of completing the compilation of the data for the year 1925 in the short period elapsing between the end of the year and the date fixed for presenting this report, the figures for animals given here are one year behind, that is, they are for December 31, 1924.

There was a general increase in the number of all animals during the year 1924, notwithstanding the fact that the rate of birth of some kinds of animals registered decreases on account of the prevalence of diseases during the two preceding years.

The birth rate for carabaos fell 1 per cent, that for cattle, 3 per cent; horses and mules, .3 per cent; and hogs, 24.4 per cent; but for goats it increased 1.4 and for sheep .2 per cent.

As to diseases, there has been an improvement except as regards horses and goats. The rate of mortality for these animals increased by .5 and .1 per cent, but for carabaos, cattle, hogs, and goats, it decreased .4, .8, .4, and .3 per cent, respectively.

The meat consumption increased by fractions of one per cent for carabaos and sheep, remained the same for cattle and horses and decreased for hogs 4 per cent and .2 for goats.

GENERAL ADMINISTRATION

Important changes during the year.—The Accounting and Property Division was divided on January 1, 1925, into two divisional units known as the Accounting Division and Property Division.

Changes in personnel.—On February 16, 1925, General Adriano Hernandez, who had been since July 1916 Director of Agriculture, died, and the undersigned was appointed Acting Director effective as of January 2, 1925, and on November 10, 1925, *ad interim* Director of Agriculture.

Other important changes in the personnel during the year were as follows: Mr. Jose S. Camus, acting chief, Agricultural Extension Division, was appointed inspector at large. Mr. Mariano Billedo was reassigned to the work pertaining to the chief of the Agricultural Extension Division; Dr. Vicente Ferriols, assistant chief, Veterinary Division, was designated acting chief veterinarian; and Mr. P. J. Wester, horticulturist, resigned.

ADMINISTRATIVE DIVISION

Activities.—This division records all official correspondences received and sent by the Bureau; keeps the civil service records of the personnel; maintains a stenographic service and a transportation service for the Bureau; make disbursements and collections; and has charge of the Central Office Building and the general administrative work.

Personnel.—The following table (III) shows the changes made in the personnel of the different divisions during the year:

TABLE III.—Personnel for the year 1925

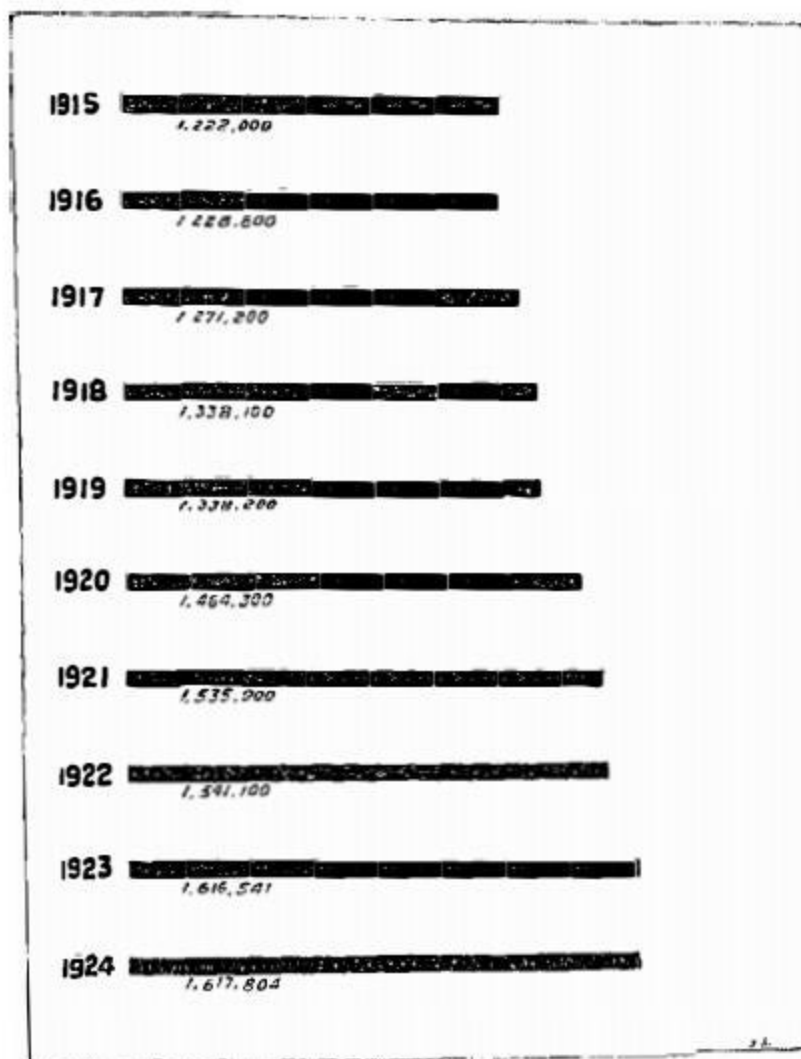
Division	Employees at the beginning of the year	Appointed during the year	Separated during the year	Employees at the end of the year
Administrative.....	61	6	5	62
Agricultural Extension.....	58	8	3	63
Accounting.....	17	6	3	20
Animal Husbandry.....	15	1	1	16
Fiber.....	84	8	10	82
Plant Industry.....	34	6	4	36
Plant Pests Control.....	62	37	20	* 79
Publications.....	14	2	3	13
Property.....	19			19
Rural Credit.....	13	4	3	14
Statistics.....	34	13	12	35
Veterinary.....	165	121	43	* 233
Totals.....	566	212	107	671

* Increases were mostly temporary emergency employees for the locust and plant diseases, and anthrax and rinderpest campaigns.

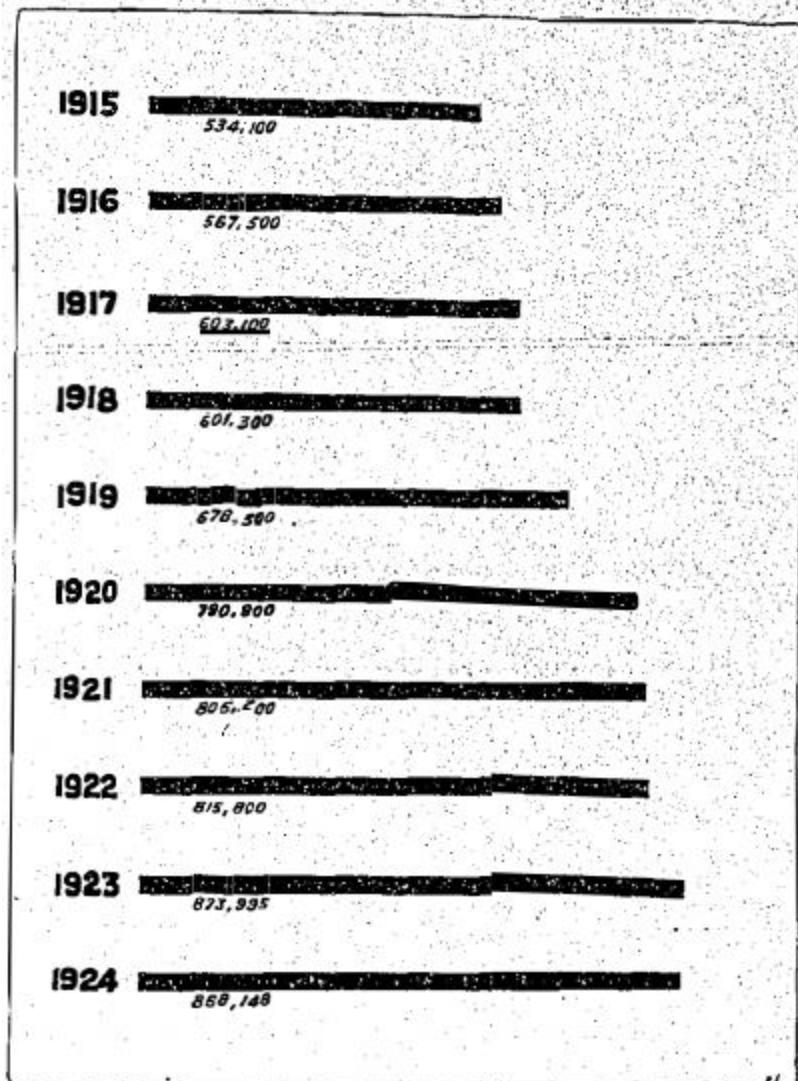
Land transportation.—This division is responsible for the operation, maintenance and upkeep of the land transportation equipment of the Bureau of Agriculture. We have at present 6 carromatas, 4 carretelas, 1 automobile, and 2 trucks.

The appointment of a mechanic greatly facilitated the repairing of the car, motorcycles and trucks of the Bureau.

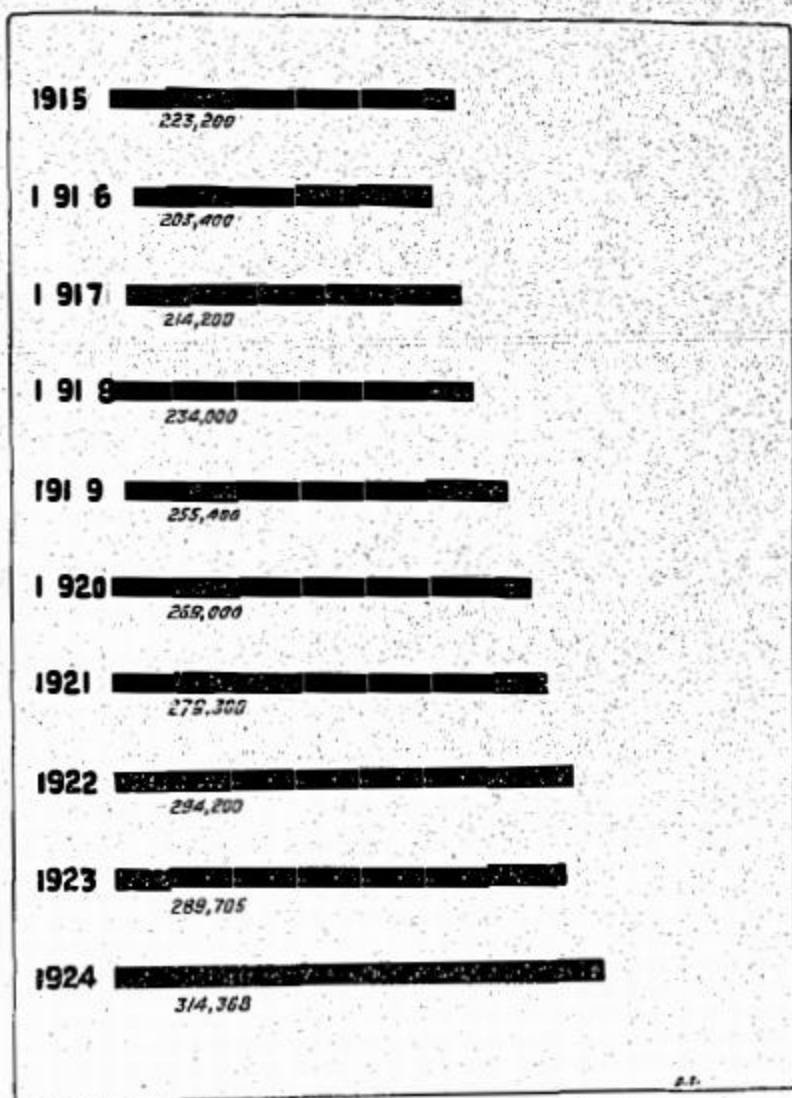
On January first we had six native ponies. During the year 7 horses were received, of which numbered 4 were purchased,



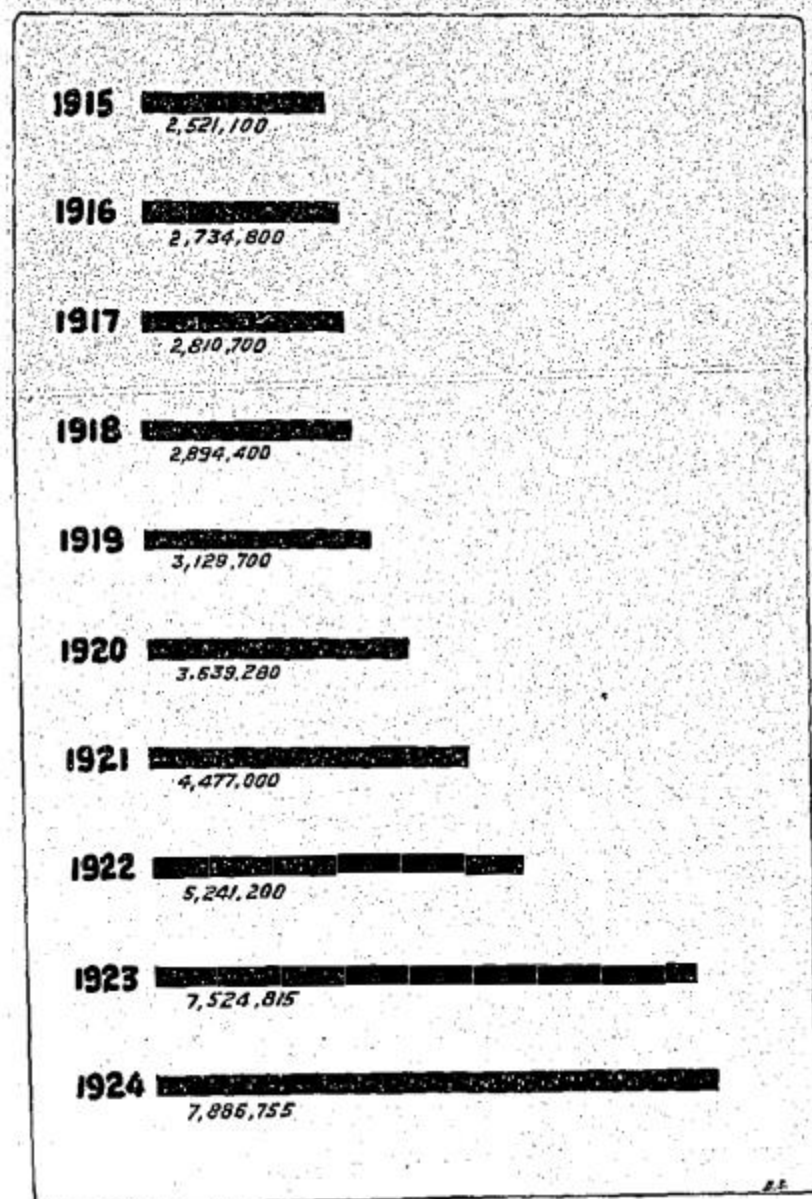
Graph showing number of CARABAOS from 1915 to 1924



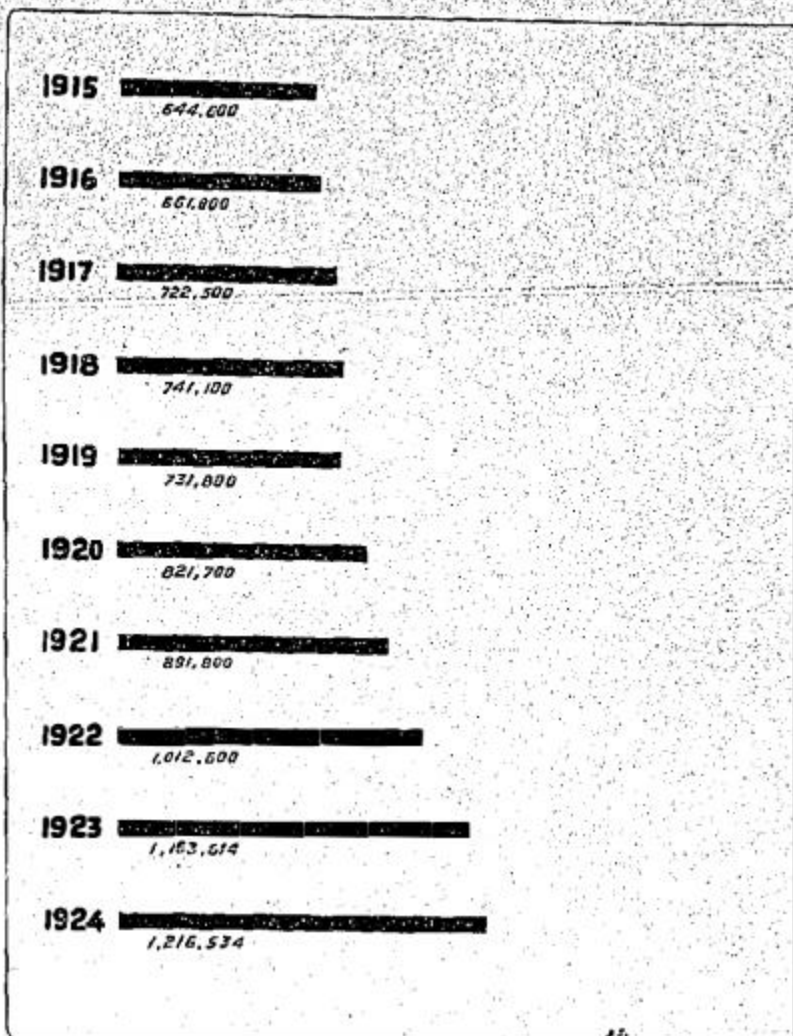
Graph showing number of CATTLE from 1915 to 1924



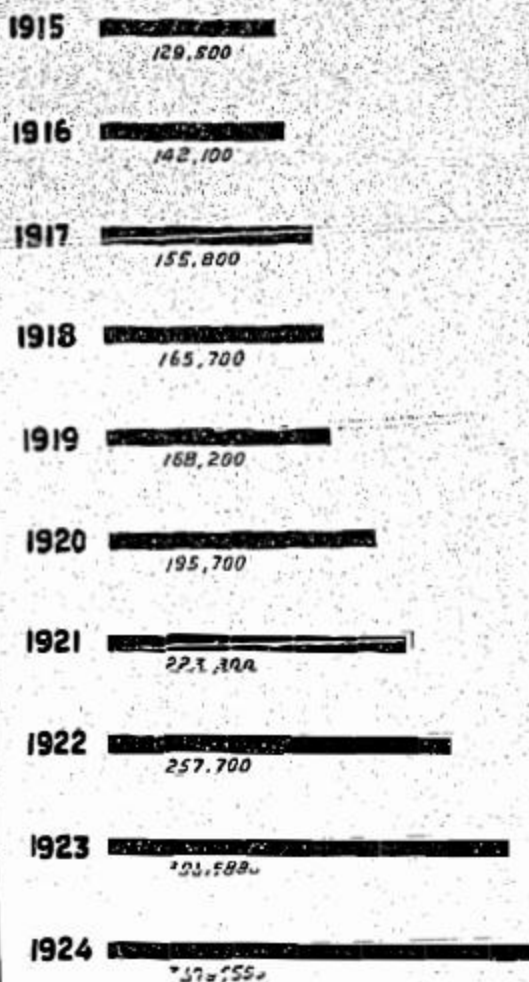
Graph showing number of HORSES from 1915 to 1924



Graph showing number of HOGS from 1915 to 1924



Graph showing number of GOATS from 1915 to 1924



Graph showing number of SHEEP from 1915 to 1924

2 transferred free of charge from the Philippine Constabulary, and 1 received from the Cebu Breeding Station giving a total in all of 13 horses. Three horses died during the year and 1 was transferred to another station leaving 9 horses on hand at the end of the fiscal year. We still have two mules in the service.

Correspondence.—During the year there were 211,540 pieces of correspondence handled, 144,215 of which were letters sent and 67,325 letters received. There were also 8,572 letters delivered by messenger to different bureaus and offices in the City of Manila and 655 telegrams sent out during the period. One thousand thirty-two (1,032) of the letters received and 1,003 letters sent were registered.

ACCOUNTING DIVISION

The principal work of this division is auditing, classifying and paying all accounts including the salaries and traveling expenses of the field force; recording income, expenses, and all assets and liabilities as classified by the Insular Auditor and by the Bureau; keeping a project ledger-book, a record of the expenses and income of each of the different stations; keeping a job-book, a record of expenses in construction and repair projects chargeable against the public works Funds; keeping a record of the expenses chargeable against the Tobacco Inspection Fund under certain projects; collecting accounts in favor of the bureau; preparing monthly trial balances of expenses and income; preparing monthly statements of accounts receivable, accounts payable, advance and collection accounts; preparing weekly financial statements for funds appropriated under three special appropriations for the Bureau (Acts Nos. 3119, 3163, and 3166); preparing monthly statements of expenditures for the Department Secretary, the Director and for the chiefs of the divisions.

As in previous years rushed payments of accounts, especially the salaries and traveling expenses of the field force, were frequent during the year; and the practice of advancing funds to some of the field force to cover their traveling and incidental expenses was continued. The provincial treasurers also continued paying our men employed in the scouting parties, as this was found necessary for their prompt payment, from the funds appropriated for the scouting parties.

TABLE IV.—Comparative statement of expenditures and income,
1924 and 1925

Items \$	Year		Increase (+) Decrease (—)
	1924	1925	
EXPENDITURES			
Salaries.....	P628,907.33	P614,202.31	— P14,705.02
Wages.....	163,838.04	173,078.57	+ 9,240.53
Traveling expenses of personnel.....	132,419.61	123,475.75	— 8,943.86
Freight, express and delivery service.....	10,855.70	8,981.02	— 1,874.68
Postal, telephone, telegraph and cable service.....	19,099.07	18,699.99	— 399.08
Illumination and power service.....	5,686.02	5,364.96	— 321.06
Miscellaneous service.....	2,407.44	1,764.88	— 642.56
Rental of buildings and grounds.....	4,993.32	5,018.70	+ 25.38
Consumption of supplies and materials.....	114,416.90	107,076.03	— 7,340.87
Printing and binding reports, documents, and publications.....	17,998.30	14,711.23	— 3,287.07
Contributions and gratuities.....	100,828.69	84,899.08	— 15,929.61
Maintenance and repair.....	11,491.00	8,661.92	— 2,829.08
Outlays (furniture and equipment).....	25,036.61	8,560.25	— 16,476.36
Deterioration of sales and sales stock.....		365.25	+ 365.25
Extraordinary losses.....	616.48	570.74	— 45.74
Campaign in the eradication of anthrax, Acts 3119 and 3151.....	190,534.28	47,505.68	— 143,028.60
Cementation, repair and construction of corrals etc., at the Sidman Matadero and Quarantine Station, Act 3157.....	16,462.87	3,464.01	— 12,998.86
Organization of scouting party to locate and fight locusts, Act 3162.....	59,730.19	97,528.88	+ 37,798.69
Campaign against rinderpest and other contagious cattle diseases, Act 3166.....		70,314.71	+ 70,314.71
Total.....	1,625,222.55	1,394,164.72	— 231,057.83
INCOME			
Income from rentals.....	7,832.80	1,929.40	— 5,903.40
Service income.....	220,976.74	226,669.92	+ 5,693.18
Miscellaneous income.....	164,079.63	158,272.15	— 5,807.48
Total.....	392,889.17	386,771.47	— 6,117.70
NET COST.....	1,132,333.38	1,007,393.25	— 124,940.13

Comparative statement of expenditures and income, special appropriation,
1924 and 1925

Items	Year		Increase (+) Decrease (—)
	1924	1925	
EXPENDITURES			
Mutual insurance of work animals, Acts 2573 and 2903.....	P617.50	P32.65	— P584.85
Total.....	617.50	32.65	— 584.85
INCOME			
Mutual insurance of work animals, Acts 2573 and 2903 (premium).....	152.00	—	152.00
Mutual insurance of work animals, Acts 2573 and 2903 (membership fees).....	6.00	—	6.00
Total.....	157.00	—	157.00
Net Cost.....	460.50	32.65	— 427.85

Statement of expenditures per capita

Year	Population	Expenditures	Expenditures per capita	Receipts	Receipts per capita
1909	7,636,426	\$181,742.95	• \$.023		
1918	10,314,310	• \$1,053,569.50	• \$.102	• \$271,936.38	• \$.0263
1919	10,551,539	1,394,707.14	.132	208,631.19	.0197
1920	10,794,228	1,832,262.82	.1697	237,687.16	.022
1921	11,042,490	1,732,737.60	.1568	243,237.14	.022
1922	11,296,467	1,460,419.37	.1292	284,639.31	.0252
1923	11,556,286	1,253,920.28	.1085	330,126.73	.0285
1924	11,822,081	1,525,222.55	.1290	392,889.17	.0332
1925	11,847,899	1,394,164.72	.1177	386,771.47	.0326

* Mexican currency, equal to P.03.

Statement of net expenditures per capita had the income realized and turned over to the Insular Treasury been available for expenditures

Year	Bureau of Agriculture expenditures	Income	Net expenditures	Population	Expenditures per capita
1909	\$181,742.95		\$181,742.95	7,636,426	• \$.023
1918	• \$1,053,569.50	• \$271,936.38	781,633.12	10,314,310	• \$.08
1919	1,394,707.14	208,631.19	1,186,075.95	10,551,539	.11
1920	1,832,262.82	237,687.16	1,594,575.66	10,794,228	.15
1921	1,732,737.60	243,237.14	1,489,450.46	11,042,490	.14
1922	1,460,419.37	284,639.31	1,175,880.06	11,296,467	.10
1923	1,253,920.28	330,126.73	923,793.55	11,556,286	.08
1924	1,525,222.55	392,889.17	1,132,333.38	11,822,081	.096
1925	1,394,164.72	386,771.47	1,007,393.25	11,847,899	.085

* Mexican currency, equal to P.03.

PROPERTY DIVISION

ACTIVITIES

This division is the custodian of all Government property belonging to the Bureau of Agriculture and supervises all transactions in connection therewith and handles all the purchases of equipment, supplies and materials required by the different divisions of the Bureau in their varied activities in the office and in the field. The work of the division may be grouped under four headings, namely—

1. PROPERTY ACCOUNTING (the recording through the medium of ledger cards, invoice and memorandum receipts and property journals of the purchase, distribution and disposition of equipment).
2. REQUISITIONS (the acquisition and repairs of all property owned by the Bureau).
3. RECEIVING AND SHIPPING (the receiving, storing and packing for shipment of all equipment, supplies and materials required).
4. TRUCK TRANSPORTATION (the handling of all shipments made by and consigned to the Bureau whether insular or foreign and delivery of animals and plant materials distributed and sold by the bureau in the city).

The rinderpest and locust campaigns conducted during the year added greatly to the regular work of the division as calling for the acquisition and shipment of the materials needed in same. Owing to the reduced appropriation of the Bureau for the purchase of equipment only the things that were considered the most essential for the work of the different divisions were acquired, special preference being given to agricultural implements and scientific apparatus.

The total property accountability of the Bureau of Agriculture as of December 31, 1925, was:

Fixed assets.....	P1,258,536.32
Supplies and materials.....	5,454.55
Sales stock (seeds and plant materials).....	1,739.93
Total	1,265,780.80

The routine work done by the division during the year is as follows:

Requisitions to Bureaus of Supply and Printing.....	242
Direct orders (contract payment only).....	362
Work orders for repairs.....	206
Request for supplies and equipment.....	4,035
Shipping memoranda.....	6,111
Total	10,956

Shipments handled (insular and foreign)

	Number of shipments	Number of cases	Weight in kilos	Value
Outgoing.....	1,737	7,557	224,649	P98,397.98
Incoming.....	435	5,097	194,361	37,425.41
Total.....	2,172	12,654	419,010	135,824.39

PLANT INDUSTRY DIVISION

ACTIVITIES

The activities of this division consist chiefly of plant investigational work.

CORN

Variety test (repeated).—The Calipus White, Calamba Yellow, Bohol White, Mestizo White, and Moro White were the highest yielders during the dry season at the Lamao Experiment Station, Lamao, Bataan, giving 1,769.86 to 2,106.68 kilos of grains per hectare—while the Calipus White, Mestizo White, Calamba Yellow Calaylay White, and Moro White were the

heaviest yielders in the rainy-season test, yielding 3,920.83 to 4,904.17 kilos of ears per hectare.

Of the pop-corn varieties tested in Lamao, the Golden Queen gave 751.05 kilos of grain per hectare; the Rice, 670.83 kilos; and the Plain, 667.11 kilos; in the dry season.

Planting-distance test (repeated).—In the planting-distance test at Lamao, 1 by 0.3 meter with two plants per hill gave an average yield of 47.07 cavans per hectare; 1 by 0.5 meter, 35.12 cavans; 1 by 0.7 meter, 31.5 cavans; 1 by 0.9 meter, 25.56 cavans; and 1 by 1 meter, 27.61 cavans.

FORAGE CROPS

Variety test (repeated).—In the comparative test at the Lamao Experiment Station of forage grasses consisting of 12 species, the Napier, Marker, Uba cane, Guinea, "La Trinidad" and Guatemala gave the highest yields, producing 110,978.61 kilos, 91,992.22 kilos, 72,795.97 kilos, 69,706.65 kilos, 56,339.16 kilos, and 41,570.20 kilos of fodder per hectare, respectively.

Of the lowland grasses tested in Lamao, the Balili, Bugalon, and Barit yielded 53,994.89 kilos, 52,003.83 kilos, and 51,208.60 kilos of fodder per hectare, respectively, when two years old.

At La Carlota Experiment Station only the Guinea grass, Para, Guatemala, and Napier were tested this year. The first two were heavy yielders while the last two did poorly.

Cutting test (repeated).—The age-of-cutting test was continued also at Lamao with the cultures of the comparative test. The grasses were cut at intervals of 20, 30, 40, 45, 50, 60, 75, and 90 days. Heavier yields were obtained from the 50 and 90 days intervals than from the 20 and 45 days interval but the fodders were less palatable to animals because of the hard stalks and tough leaves. Fodder from all the grasses was very palatable to animals when cut in 20 and 45 days being tender and succulent.

Propagation at Lamao of the best yielding forage grasses so as to have supplies for distribution purposes was continued this year.

LOWLAND RICE

Dry-season planting test (repeated).—In the comparative test of several rice varieties made at the Rosales Rice Experiment Station during the dry season this year, Sipot yielded 49 cavans per hectare, Binicol, 41; Pinursigui, 39; Ryuchu, 39; Sanglay, 36; Saigorot, 34.5; Inita, 34; Balibod, 32; Guinangan,

31.5; Mangasa, 37; and Lava, 27.5. At the Alabang Rice Experiment Station, Sipot proved to be superior, yielding 50.02 cavans per hectare against 34.51 cavans of Binicol, 32.32 cavans of Dinagat, 36.28 cavans of Mangasa; and 30 cavans of Mag-sangle.

Variety test (repeated).—Of the varieties compared during the regular planting season in Rosales, Madaling Araw produced 32 cavans per hectare; Mangasa, 25 only. Madaling Araw proved quite resistant to drought. Among the nonbearded varieties that were not damaged by floods and drought at Rosales, Apostol gave 59 cavans per hectare; Sipot, 57; Calibo I, 55; Cruz, 50; Malines, 48; Roxas, 41; and Minalabon, 40.

Fertilizer test (repeated).—Despite adverse conditions at Rosales, the complete fertilizer test showed that fertilization with carabao manure mixed with rice hull ashes applied 500 sacks to the hectare increased the yield per hectare by 6 cavans; that lime applied at 500 kilos gave 10.5; commercial guano, 11.5; bonemeal, 11.5; and copra cake, 15.5 cavans more per hectare. At Alabang three rates of application were tried—100, 150, and 200 kilos per hectare—of a fertilizer having 20 per cent nitrogen and the results obtained so far have shown that 150 and 200 kilo-applications are beneficial.

Submergence-depth experiment in rice irrigation (repeated).—A continuation of the experiment of the Alabang Rice Experiment Station at Alabang, Rizal, showed that there was no marked difference in grain yield between the plots under 9- or 12-centimeter submergence and those just kept moist, but that the yield of straw increased in direct ratio to the depth of submergence.

Submergence of rice weeds (repeated).—At the same station 7 common species were studied and it was found that a 12-centimeter submergence would stop their growth. One species, however, of the lily family, with a semifloating habit, thrived in both shallow and deep water.

Rice-hay test (repeated).—The rainy season crops from ten varieties used, which yielded an average of 2,012 kilos per hectare, averaged 499 kilos per hectare more than the yield from the dry-season crops.

UPLAND RICE

Variety test (repeated).—In the general variety test at the Lamao Experiment Station, of the 66 varieties, Kinastila, May-

oro, Dinalis, Inantipolo, Binicol, Minantica II, Tapakoy, Tapuy, Burn, and Macaraning gave the highest yields, producing from 14.25 to 24.10 cavans, respectively. Of the 6 varieties tested in Alabang, the Madaling Araw was the best yielder, but the pedigreed Kinastila and Kinampupoy produced high yields also.

Head-to-the-row test (repeated).—Kinastila in the head-to-the-row test at Lamao yielded the heaviest crop—37.37 to 44.77 cavans per hectare.

Seeding experiment.—The preliminary seeding experiment at Lamao indicated that the highest yield or an increase of about 150 per cent, could be obtained by planting only 3 to 4 seeds per hill, rather than many.

Seasonal planting test on upland rice.—The seasonal planting test showed that the best time to plant upland rice was May to August under Lamao conditions, as planting at other periods gave no yields without irrigation.

SUGAR CANE

Acclimatization test (continued).—Of the 105 varieties and strains tried at La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros, only 33 were found desirable.

Variety test (repeated) (1924-1925).—At La Carlota the New Guinea 24-A produced 152.53 piculs of sugar per hectare; New Guinea 24-B, 133.99; Badila, 121.42; Hawaii-109, 119.04; and Negros Purple, only 94.03 piculs.

Mulching test (repeated).—An increase of 63.2 per cent of sugar production was obtained in favor of the Negros Purple plot mulched with a commercial mulching paper at La Carlota.

Shallow and deep cultivation experiments (repeated).—Deep cultivation produced 100.76 tons of cane or 160.2 piculs of sugar per hectare against 82.45 tons of cane or 148.41 piculs of sugar following shallow cultivation with a cultivator, or a gain of 18.31 tons of cane, or 11.79 piculs of sugar. These figures are based upon the sugar content obtained in each case.

Green manuring test (repeated).—At La Carlota cowpeas or mongo plowed under while fruiting gave a higher yield of Negros Purple cane than when plowed under after fruiting, the increase being 26.54 and 22.27 kilos, respectively.

Fertilizer tests (repeated).—At La Carlota the sugar-cane plot limed and given a complete fertilizer yielded 122.10 piculs of sugar against 110.5 piculs from a plot fertilized with ammonium sulphate and against 70.51 kilos from the control plot, gains of 51.59 and 39.99 piculs, respectively.

TOBACCO

Seed testing (repeated).—At the Ilagan Tobacco Experiment Station, Ilagan, Isabela, there was found to be a difference of almost 200 per cent germination between light and heavy seeds in favor of the latter. The bigger native varieties showed a 33½ per cent higher germination than the smaller exotic varieties. The 10-Repollo, 11-Espada, 12-Pampano No. 1, 6-Pampano No. 2, 18-Florida Sumatra, 15-Romero, 47-Baker's Sumatra, 36-Bahia, 65-Havanna and 40-S. P. No. 2, were used.

Standardization of varieties and strains.—The original stock of 11 varieties and strains of Ilagan has been reduced for convenience sake to 8: 12-Pampano No. 1, 17-Pampano No. 3, 6-Pampano No. 2, 51-Pampano No. 4, 11-Espada, 10-Repollo, 52-Vizcaya, and 15-Romero. Notwithstanding adverse weather conditions, the characters statistically studied showed fair means, standard deviation, and coefficient of variability. Only the heights of the plants varied. The 12-Pampano No. 1 and 6-Pampano No. 2 gave the broadest leaves and the best yield, the 11-Espada the narrowest leaves and 10-Repollo, medium leaves; the 52-Vizcaya and 15-Romero produced aromatic leaves; and the 17-Pampano No. 3 and 51-Pampano No. 4 were not heavy yielders but had the finer veins of the native varieties.

Wrapper variety test (repeated).—For this experiment at Ilagan the 47-Baker's Sumatra, 18-Florida Sumatra, 40-S. P. No. 2, 65-Havanensis, and 43-S. P. No. 2 were used. The varieties all came out true to type, yielding 27.9, 47.0, 24.8, 27.7 and 24.7 quintals per hectare respectively.

Pedigree plant selection test (repeated).—One thousand eighty-seven (1,087) pedigree selections were made representing 14 varieties and strains.

Physiology of priming time.—Indications were observed pointing to the successful production of light glossy leaves by priming a little before the ordinary maturity stage of the leaves.

Artificial mulching experiment.—In a preliminary test the plot mulched with a commercial paper-mulch produced 1.15 fardos more per hectare than the unmulched plots and under unfavorable weather conditions.

Planting distance test (repeated).—At the Sarunayan Tobacco Experiment Station at Sarunayan, Cotabato, it was found that the best distances for spacing Sumatra strains and small-leaved varieties was 80 by 40 centimeters and for hybrid strains and large-leaved varieties, 90 by 50 centimeters.



Florida-Sumatra 1395 growing under (Sakela (Cagayan Valley) conditions

In the off-season planting of wrapper tobacco at Sarunayan 400 square meters of land were planted with Baker's Sumatra which yielded 24.4 kilos or 601 kilos (calculated) per hectare of fine and good-colored leaves; and a similar area planted with Bx-hybrid produced 30.6 kilos or 740 kilos (calculated) per hectare of fine, elastic and good-colored leaves. Due to inadequate preparation of the land, which had been a cogonal, and to the late planting at Sarunayan the yield per hectare of the crop harvested was naturally low.

ABACA

Variety test (continued).—Of the varieties tested at the Guinobatan Abaca Experiment Station at Guinobatan, Albay, the Tangongon made the most growth, or a 297 per cent increase in height in 1 year; and the Lauzigon, Maguindanao and Canorajan followed with 261, 205, and 182, per cent respectively. As to stooling, the Lausigon was at the top with 11.1 average number of stalks per hill; the Bangulanon, 8.1; Maguindanao, 5.4; Samina, 4.8; Puti Tomatagacan, 4.4; and Bulao, 4.2.

Shading experiment (continued).—The plants in the plot exposed to the sun at Guinobatan uniformly showed less growth than those in the shaded plot.

Mulching experiment (continued).—Mulching with dry leaves of abaca and abaca waste, in Guinobatan, gave a slight increase in the average number of stalks produced per hill, after ten months.

Planting experiment—Rootstocks vs. Suckers (continued).—It was noticed in Guinobatan that while the plants from suckers were higher by 0.28 meter on the average, those from rootstocks had an average of one stalk more per hill.

Tensile strength of abaca fiber.—It was found in a final test that the longer the fiber remained in the shale after stripping, the less the tensile strength became.

Yield test of abaca per hectare.—A preliminary investigation showed that the present average plantation containing several varieties of abaca in Albay gave a total yield of 127.3 kilos of J2 fiber per hectare for one harvest, or about 509 kilos of fiber per hectare per year.

AGAVES

Retting test of maguey (repeated).—At the Lamao Experiment Station at Lamao, Bataan, 229 leaves of maguey weighing 72 kilos gave 1.16 kilos or air-dried fiber or 1.6 per cent with an average length of 1.0 meter. It took 4 days to ret these

in salt water, 7 days in salt water and fresh water (alternating) and 11 days in the mud.

COTTON

Variety test (repeated).—The 1924-25 variety test in Lamao resulted as follows: (1) Trice, (2) Kinastila, (3) Ferguson, (4) Cambodia, and (5) Toquillo, yielding respectively from 594.82 to 119.64 kilos of lint per hectare.

Planting distance test (repeated).—The distance of planting varies with the variety. Kinastila planted at 1 by 1 meter yielded 209.15 kilos of lint per hectare while at 1 by 0.9 meter, 1 by 0.8 meter, and 1 by 0.7 meter it yielded 270.04, 71.94, and 48.27 kilos, respectively.

Seasonal planting test (continued).—The seasonal planting at Lamao showed that the best time for planting cotton is from September to October.

KAPOK

The two-year old trees fruited for the first time with 34 pods the highest number of pods per tree under Lamao conditions.

Planting cuttings of kapok showed the best size for the purpose was 10 feet long and 5 inches in diameter, which gave 100 per cent success.

MISCELLANEOUS FIBER PLANTS

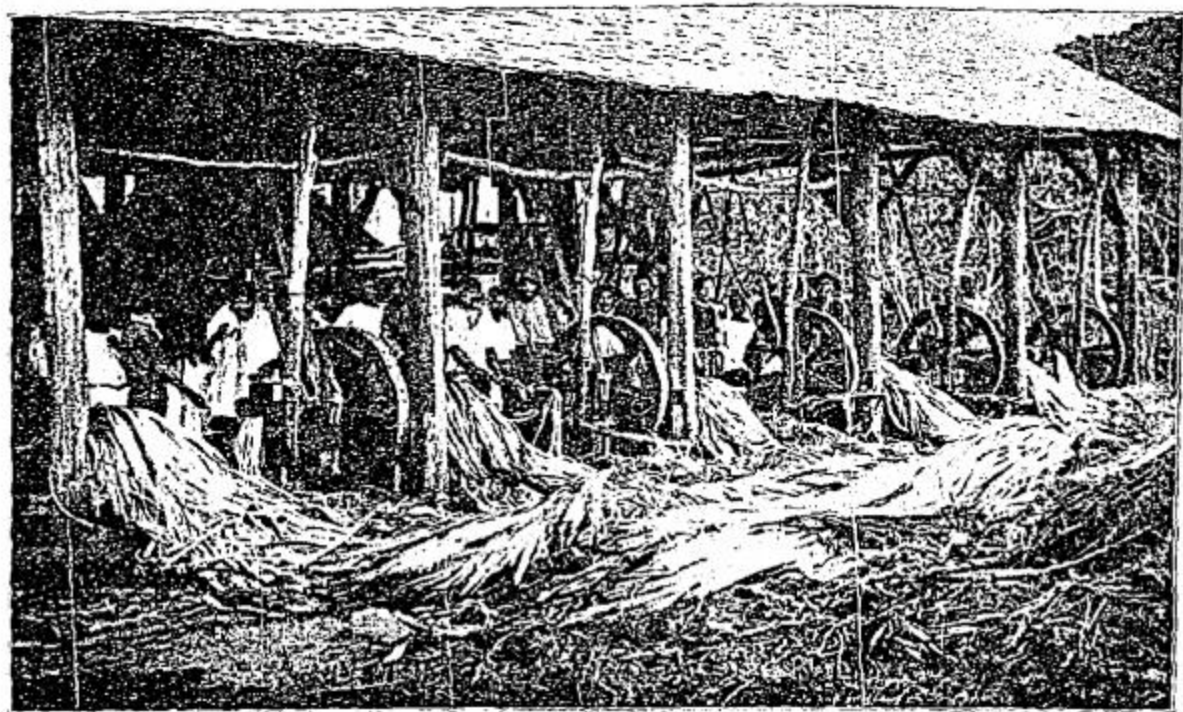
The newly introduced fiber plants, consisting of Balsa, *Ochroma lagopus*; Pochote, *Ceiba aesculifolia*; Pita floja, *Ananas macrodentes*; and Javanese kapok, *Ceiba pentandra*, are doing well under Lamao climatic conditions.

OTHER AGRONOMIC CROPS

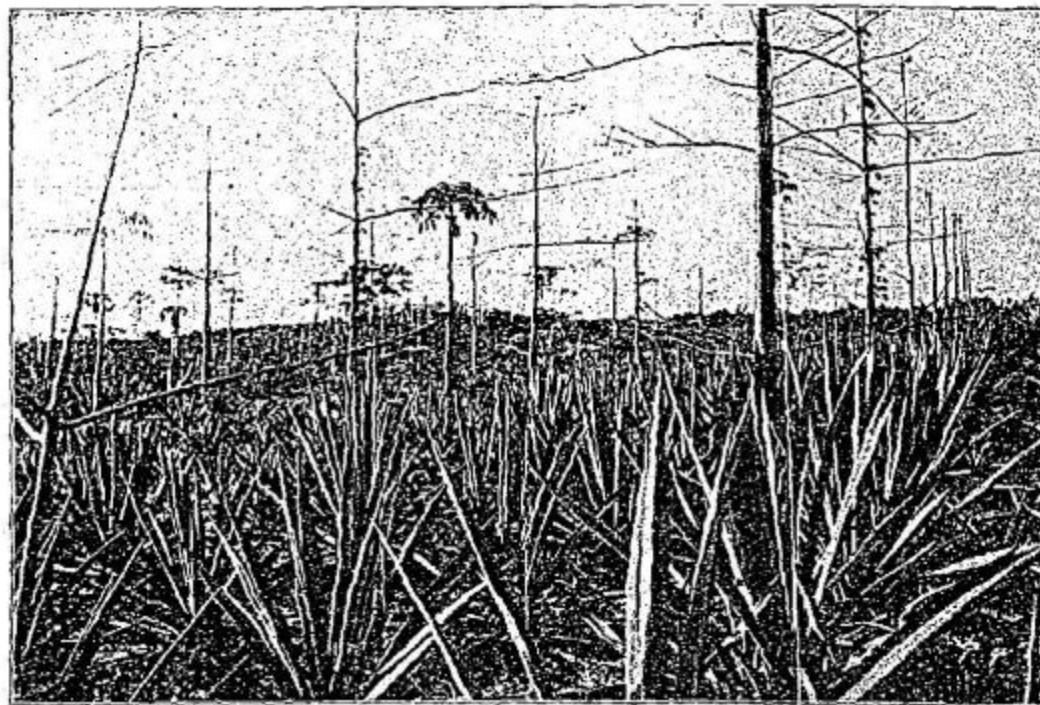
Variety test of peanuts (repeated).—Of the 14 varieties tested again at Lamao the Spanish yielded an average of 1,006.78 kilos of unshelled nuts; San Jose No. 11, 1,004.58 kilos; Tennessee Red, 933.77 kilos; San Jose No. 2, 890.42 kilos; and Zambales, 818.79 kilos per hectare.

Variety test of cowpeas (repeated).—At Lamao the New Era P. I. No. 7911 yielded 636.52 kilos per hectare and New Era P. I. No. 8343, 584.36 kilos. These are the best yielders of the six varieties of cowpeas tested.

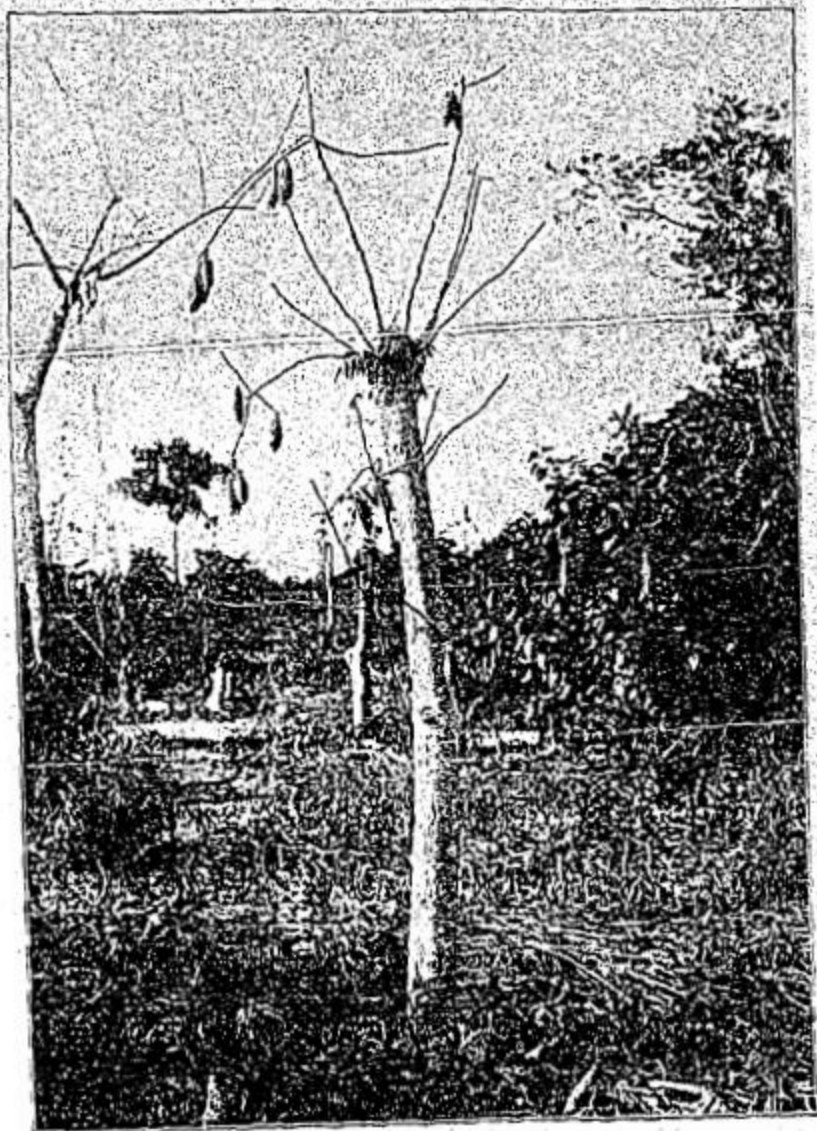
Variety test adlay (repeated).—Of the 14 varieties tested at Lamao, La Union Red, Mountain Province, Momungan, Batangas, and Lamao White proved to be the highest yielders, giving 289.78, 260.20, 249.98, 218.19, and 171.63 kilos of grain per hectare, respectively.



A string of manual stripping machines run by a 30-horse power water wheel at Bago Branch, Cebu Development Co.,
Talomo, Davao



Kapok trees 6 meters apart interplanted with Sisal, Lamas Experiment Station.



Kapok cuttings, Lamao Experiment Station

Yield test of sorghum (continued).—The Basco sorghum yielded 450 kilos per hectare.

CITRUS

Variety test (continued).—At the Lamao Experiment Station three varieties of limes were high yielders (Tahiti, P. I. No. 5163—172 fruits per tree; Everglade, P. I. No. 3669—122 fruits; and Lime, P. I. No. 5176—98 fruits); one of lemon (Lisbon, P. I. No. 708—80 fruits); three of pomelos (Triumph grapefruit, P. I. No. 1632—139 fruits; Siamese seedless, P. I. No. 3673—98 fruits; Siamese seedless, P. I. No. 3442—20 fruits); two of mandarins (Kishiu, P. I. No. 1271—500 fruits; Ubay, P. I. No. 5139—36 fruits); and six oranges (Pineapple, P. I. No. 1635—335 fruits; Balanga, P. I. No. 3650—319 fruits; White Siletta, P. I. No. 1715—227 fruits; Carleton, P. I. No. 4124—119 fruits; Ruby, P. I. No. 1639—114 fruits; and Excelsior, P. I. No. 1260—96 fruits). At the Tanauan Citrus Experiment Station at Tanauan, Batangas, 10 varieties of oranges, 4 of lemons, 6 of pomelos and grapefruit, and 2 of limes are promising.

Forced fruiting test (repeated).—Smudging and etherization had no apparent effect upon the fruitless and shy-bearing trees at Lamao.

Cover-crop and mulching test (continued).—In Tanauan the continuous cover-cropping with *Tephrosia candida*, ipil-ipil and cacauate gave the best results; and in Lamao Bontoc lima and Lamao lima, black scab, seguidillas, soy beans, kibal and cowpeas gave the best results in the order of their enumeration.

Rice straw, dry cogon, and grasses were the most satisfactory mulches for citrus trees in Lamao.

Rejuvenation experiment (continued).—In Lamao it was again found that the calamondin and sour orange were good stocks for bridge-grafting; and in Tanauan the Santa Cruz mandarin, Sampson tangelo, Zinkom mandarin, Chinese mandarin, Siamese seedless pomelo, March seedless and Royal grapefruits were advantageously used in topworking old and otherwise weak mandarin trees.

Storage experiment (repeated).—In Tanauan 72 per cent of the fruits of the Sampson tangelo (without disinfectant) and 64 per cent (with disinfectant) kept in an underground chamber remained juicy and of a good color and excellent flavor for eleven weeks. Of the mandarins stored, the untreated fruits kept decidedly better.

COFFEE AND CACAO

Fertilizer test (continued).—In the fertilizer test of Excelsa coffee at the Lamao Experiment Station, the following mixtures per tree gave the best results; (1) guano 0.39 kilo, potassium sulphate 0.18 kilo, and bone meal 0.39 kilo; (2) dried blood 0.32 kilo, potassium sulphate 0.18 kilo, and bone meal 0.39 kilo; and (3) dried blood 0.5 kilo, potassium sulphate 0.48 kilo, and acid phosphate 0.48 kilo. The average yield per tree for each combination was 3.20 kilos, 2.2 kilos, and 2.0 kilos of clean coffee, respectively.

Irrigation test (continued).—In the irrigation test, the amounts of water used from 10 to 50 gallons per tree applied twice a month were not sufficient to maintain the trees during the dry months at Lamao. The foliage wilted for lack of sufficient water.

Comparative variety test (continued).—Liberian coffee gave the highest yield—1,533.18 kilos of clean coffee per hectare, and Excelsa coffee was second with 1,497.62 kilos in the comparative test.

Variety study (continued).—A study of the berries of the different varieties of coffee was made at Lamao and two types of Liberian and six types of Excelsa coffee were again observed.

Beverage test.—Since they are used for that purpose to some extent, the drinking qualities of different ages of leaves of Excelsa and Liberian coffee were tested but it was found that they had a disagreeable taste.

Cup test.—Of the coffee berries the Liberian (big-type berries) made the best coffee, the Robusta next, while the Excelsa (small-type berries) came third, the Canephora fourth, the Liberian (small-type berries) fifth, and the Congensis sixth.

Forced fruiting test.—The etherization and smudging of coffee trees to force them to fruit had no effect.

Hybridization test (continued).—The Liberian, Excelsa, and Robusta coffees were hybridized with each other to produce hardy and superior strains.

Viability test.—Fresh coffee seeds, submerged in water, kept their vitality for a month.

Cacao variety test (continued).—There are 285 young cacao plants of six varieties, growing at Lamao.

MANGOES

Vegetative propagation test.—A successful method of propagating the mango vegetatively lately tried at the Lamao Ex-



(4) A young pink pomelo tree on rough lemon stock.
Tanauan Citrus Station



(6) Vittafranca lemon tree on pomelo stock, 4 years
old. Tanauan Citrus Station

periment Station is side-grafting, which is akin to inarching or bottle-grafting. In this method, the lower part of the scion is inserted in a pot of soil and the upper part covered with damp moss.

Forced fruiting test (continued).—By smudging at Lamao, mango tree No. 31 yielded 1,200 fruits; No. 30, 120 fruits; No. 103, 386; No. 5, 425; and an unnumbered tree, 128.

PINEAPPLES

Fertilizer test (continued).—Of the three mixtures of fertilizers tried the best combination was found to be one containing copra meal, potassium sulphate, and bone meal, applied at the rate of 482.55 kilos per hectare. The plots thus treated gave a yield of 25,962.42 kilos of fruits.

The fertilizers were applied two months before the flowering periods. The yield was taken from first fruiting season plants only and was then a partial production due to fertilization.

Mulching test (repeated).—The use of rice straw, commercial mulch-paper, grasses, and cogon for soil mulches to conserve moisture and check the growth of weeds, and thus minimize the cost of cultivation, showed the superiority of the above materials in the order named as to vigor of the plants mulched.

Comparative test of root crops (repeated).—The highest yielding sweet potato variety was Hawaii No. 1, which gave 10,190.76 kilos of tubers per hectare in a test of 36 varieties; of cassava, variety unknown No. 1, gave a yield of 58,833 kilos per hectare in a test of 30 varieties; and of Yautia a variety unknown (black stem), 23,571 kilos per hectare.

VEGETABLES

Cabbage variety test (repeated).—Nineteen varieties were tested under the soil and climatic conditions of Lamao, but seven varieties were destroyed by insects. The varieties that gave good yields were the Glory Enkhuizen, which produced 46,560.91 kilos; the Stain Early Flat Dutch, 30,482.14 kilos; the All Season, 10,569.64 kilos; and the Premium Large Late Flat Dutch, 10,182.14 kilos. These yields were estimated on the hectare basis and a 100 per cent stand.

Pepper variety test (repeated).—Of the seven varieties tested at Lamao the Crimson Giant yielded 6,195.87 kilos per hectare; the Sweet Spanish, 5,653.70 kilos; Pimento, 4,814.00 kilos;

Golden Bell, 4,591.83 kilos; the Anaheim Chili, 4,130.87; the Large Bell, 2,454.89; and the Cayenne, 1,164.09.

MISCELLANEOUS HORTICULTURE

Papaya-papain extraction (repeated).—Experiments on papaya fruit-sap extraction for papain at the Lamao Experiment Station showed that a greater quantity can be extracted in the morning than in the afternoon and the quantity decreases with every extraction after the first. The average weight of dried "sap" per fruit was 0.2–1.1 grams.

The average production of good-sized fruit before the tree dies in Lamao is: Round Solo, 117 fruits; Pointed Variety, 102; and Hawaiian, 89.

AVOCADO

Acclimatization test (continued).—One hundred and seventy budded as well as seedling trees of 32 varieties or strains are growing in the orchards at Lamao. Of these only 14 varieties are fruiting. Among the fruiting varieties the Pollock and Commodore were the most productive. They produced 83 and 70 fruits per tree this season, respectively. Of these 33 plants were set out this year.

Preservation test (repeated).—In the preservation of avocado fruits at Lamao with shellac after dipping them in 4 per cent formaline solution, all the fruits lasted only 13 days, except one which was coated with shellac three times. The Cardinal proved of better keeping quality in all conditions even under control.

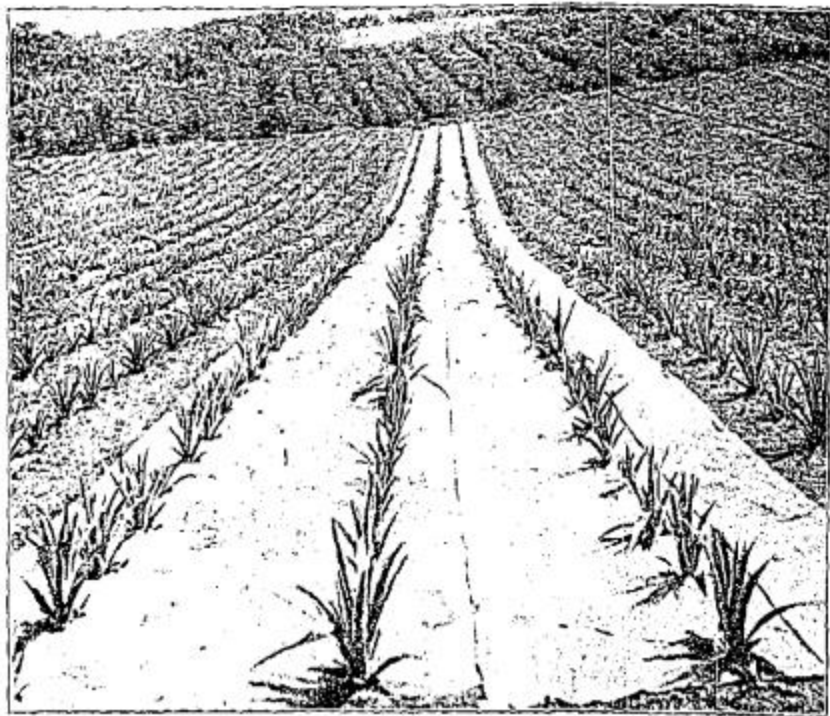
Forced fruiting test (repeated).—Attempts to force the avocado to fruit at Lamao by smudging and by girdling the branches had no results.

BANANAS

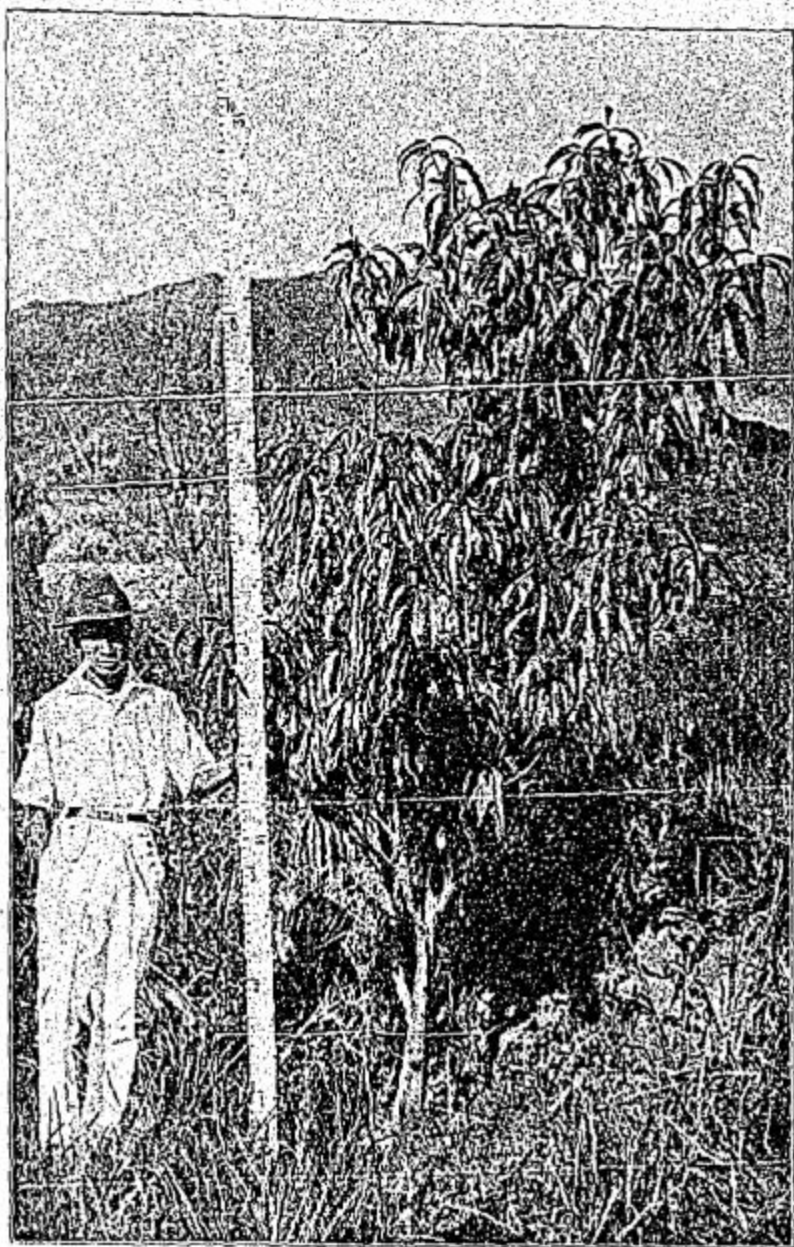
Emasculating test.—In an experiment at the Lamao Experiment Station on the relation of the male flowers to the ripening of fruits, it was found that by cutting off the male flowers after pollination, the ripening of fruits was hastened by 2 to 9 days and the size increased somewhat, as observed in the varieties Katali and Toybok.

RIMAS

Individual performance test (continued).—The old trees yielded each from 60 to 396 fruits this year, while the young ones fruiting for the first time, from 1 to 125 fruits.



Pabco paper used as mulch for Hawaiian pineapples. Lamo Experiment Station



Early Crawford peaches growing at Bontec Acclimatization Station

MISCELLANEOUS TROPICAL FRUITS

Acclimatization test (continued).—There are four orchards of miscellaneous tropical trees representing 220 species, 305 varieties and 2,055 trees at Lamao. The *Macadamia* sp. and *Mecules platyphus* fruited for the first time this year.

Acclimatization of semitemperate fruit and nut trees (continued).—The varieties of apples which fruited this year in the Bontoc Acclimatization Station, Bontoc, Mountain Province, were the Anislin, and 10 trees grown from cuttings from a variety found in the Mountain Province. The peach trees flowered for the first time this year. The other temperate plants are too small yet to come into bearing.

The chayote, *Sechium edule*, succeeded well in Bontoc. The yield was 235 fruits (about 59 kilos) per plant. As a vegetable food the chayote is gaining popularity being considered far superior to upo, *Lazearia leucantha*.

MISCELLANEOUS COÖPERATIVE EXPERIMENTAL WORK

The division had 2,018 coöperators this year experimenting on agronomic, fiber, and horticultural plants as against 897 in 1924.

Farm machinery and implement investigations.—In testing the Cletrac and Fordson tractors this year using a 3-bottom Cliver plow and a single-bottom gang plow, respectively over level, moist sandy loam land previously planted to corn, the total estimated cost of plowing and harrowing per hectare was ₱30 and ₱25, respectively. This test was made in Cotabato, Cotabato, and Parañaque, Rizal, respectively.

Irrigation.—It was found on the Santa Barbara irrigation project land in Iloilo, that the majority of the farmers favor the raising of only one crop a year. It was claimed that the combined yield of two crops was much less than the yield of one, due to the fact that water runs short during the latter part of February to the middle part of May. Six most important varieties were found under cultivation; namely, the White and the Red Arabon, the White and the Red Lubang, the Pinili II; and the Oscure, a glutinous variety. The yields of these varieties ran from 30 to 80 cavans per hectare.

Farm blasting investigation (continued).—Dynamite of different strengths were used for making holes in which to plant fruit trees and for removing boulders and stumps. The boulders to be removed being very hard and the bamboo stumps very

deeply rooted and ramifying in all directions, two or more charges were found necessary. Fruit trees set out in holes blasted, measuring from 1 to 2 meters in diameter, exhibited more vigorous growth and more luxuriant foliage than those planted in holes dug by hand. The work cost from ₱0.12 to ₱0.24 per hole in loose soil and from ₱0.92 to ₱1.20 each in adobe rock as against ₱0.11 to ₱0.15 each in loose soil and from ₱1.20 to ₱1.50 in adobe rock dug with spades and other hand tools. Blasting out bamboo stumps cost from ₱3 to ₱3.50 a cluster measuring 1.5 meters in diameter as against ₱4 to ₱5 for uprooting them by man power; and for removing boulders from 1 to 1.7 meters in diameter the cost of dynamiting ranged from ₱0.50 to ₱0.90 as against ₱1.20 to ₱1.50 by man power.

MISCELLANEOUS FIELD INVESTIGATIONAL WORK

RUBBER INVESTIGATION

Para rubber.—It was found on investigating that Mindanao has approximately 305,249 tappable trees in the three Provinces of Cotabato, Davao, and Zamboanga, which are all outside the typhoon belt and have an evenly distributed rainfall and a humid climate; Bataan, 700 tappable trees; Sorsogon, about 5,000 trees, of which about 2,000 are of tappable age, and La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros, 18 tappable trees.

Para rubber thrives best in Mindanao in plantations having surface soils varying from deep alluvial to very dark friable clay loam and subsoils of clay to brownish nonstenacious clay. It also grows well in Bataan, which although it has distinct dry and wet seasons and is within the typhoon belt has areas protected by forest and suitable soil conditions.

In Mindanao they prepare forest lands for planting rubber by the "caingin" system. The planting distances found best are: 20 by 24 feet, 20 by 22 feet, and 20 by 20 feet.

Ring-weeding, hoeing, and plowing are done in cultivating young trees, but when the trees are 4 or 5 years old cattle are turned in to pasture and tall growing weeds are cut down once in a while. Soil aeration is done by trenching 2 feet deep by 2 feet wide alternately, between rows. Catch and cover crops are grown on 1-4-year old plantations.

Low yields commence when the foliage is shed from February to April; the high yields are from July to January. Flower-



(a) Para rubber. 3 years, 9 months old, under clean culture.
Balactasan Estate, Basilan



(b) Partial view of the Para rubber plantation at Abucay, Bataan

ing time is May to June; fruiting, August to October beginning at the age of from 4 to 5 years.

Strong winds reduce the yield from 30 to 50 per cent according to the manager of the American Rubber Co., Basilan, Zamboanga; rain is found detrimental at the time of tapping, but increases the flow of latex for the next four days.

The trees are tapped when from four to six years old but it is considered better to wait until the eighth year, because not till then is the bark thick enough to withstand severe injury. Tapping is done two feet above the ground and one foot above the former opening on the other side of the trunk. In a half spiral is the tapping system for young trees and one-third to one-fourth for older trees. A man taps from 300 to 500 trees in 2 to 3 hours work.

The average yield per tree not yet at its optimum yielding capacity is 1.08 kilos of dry rubber; and 2.83 kilos is a fair yield for older trees. The cost of production per kilo, including overhead charges is ₱1.22, and ₱752 is said to be the cost of bringing a hectare of rubber into bearing in Mindanao.

Castilloa and Ceara rubbers.—There were reported to be about 24,000 tappable *Castilloa* trees also in Mindanao and 52 tappable trees of *Ceara* rubber in La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros. Rubber extracted from *Castilloa* is sold as scrap rubber and is of inferior quality to *Para* rubber; but *Castilloa* rubber extraction is simple and although the trees yield only about half as much as *Para* they are not so exacting as to cultural requirements. Six trees of *Ceara* rubber in La Carlota in 1925 yielded 59.6 grams which was only about one-third of the yield from six *Para* rubber trees, these having given 209.18 grams for three days' tapping.

COCONUT INVESTIGATION IN BATANGAS, BATAAN, MASBATE, ROMBLON, AND ORIENTAL NEGROS

In Rosario, Batangas, it has been found that nuts from young trees (under 15 years old) used for seeding gave only 60 per cent germination and that the resulting seedlings were mostly rachetic.

Certain planters in Abucay and Cabcabin, Mariveles, Bataan, despite the well-marked dry season, can produce coconuts profitably, harvesting from 30 to 100 nuts per tree annually and selling the young one for confectionery purposes at from ₱0.10 to ₱0.15 apiece.

In San Jacinto and San Fernando, Masbate, the large coconut estates use tractors with disk plows and harrows to eradicate cogon and the like from their plantations, spending from ₱15 to ₱20 per hectare. At Uson, Masbate, certain homesteaders control rank weeds by plowing and harrowing the interspaces in the coconut groves 6 times a year at regular intervals and planting same thickly with fast growing camotes.

Some coconut owners in Romblon and Iloilo find it profitable to lease their trees for *tuba* tapping at the rate of ₱0.01 per day per tree throughout the year.

During the dry seas contractors are utilized in cultivating coconut trees on the Polo Coconut Plantation, Tanjay, Oriental Negros. The average cost is ₱12.70 per hectare.

ABACA INVESTIGATIONS IN SURIGAO, SAMAR AND LEYTE

In the northern part of Surigao and the central part of Samar where the soils is a heavy clay, abaca plants have been found to be of much smaller varieties—like the Babauno in Surigao and the Lawisid in Samar—than those of Leyte where the soil is clay loam and sandy loam.

In Leyte, there are found the following varieties; the Inusa, productive; Layahon (Liahon), having a fine white fiber; Banguisan, deep-rooted; Alman, with long and strong fiber excellent for rope making; Samoro, a fine fiber for cloth weaving (halas wild) with brittle fiber.

Alman and Pinoonan have the longest fibers—from 3.45 to 3.80 meters. Alman and Liahon are easy to strip; Agutay shows more of the banana than abaca characteristics.

The longest stalk found was of the Agutay variety. It measured about 4 meters and the heaviest production, 63.25 kilos of fiber per stalk, was from the Alman variety.

Canton and pakol were not found in Leyte, Surigao, and Samar.

No abaca disease or pest was found in the places investigated. Typhoons have always been the greatest enemy of abaca in these provinces.

All the plantations are old and neither cultivation nor rejuvenation was evident, though many of them had a good stand.

No modern stripping machines are used in these three provinces. The stripping knives used have teeth ranging from 18 to 22 and the grades of the fiber produced range from "J" down to "DM."

SEED AND PLANT INTRODUCTION

Seeds and plant materials acquired by the division during 1925 for propagation purposes:

Station	Number of		Quantity received			
	Species	Varieties	Seeds, tubers, etc.		Number of budsticks or cuttings	Number of plants
			Number	Kilos		
Alabang Rice Experiment Station		4				
Bontoc, Baguio—Acclimatization Station	93		* 14	231.08	* 3,359	206
			* 1,917			
Gulnabatun Abaca Experiment Station		42	* 3,800			7,383
		89	* 3,274	4.60		
Iligan Tobacco Experiment Station		287	* 42,663	* 1.39	* 7,872	1,166
Lamas Experiment Station	85			32.22		
La Carlota Sugar Cane Experiment Station		30	* 512	* 5.42	* 5,882	66
La Union Tobacco Experiment Station		42	* 7	* 2.2	* 60	9
			* 180			
Rosales Rice Experiment Station						
Sarunayan Tobacco Experiment Station		18				6
Tausan Citrus Experiment Station		33	* 200	* 3.06	* 186	8
Total	178	515	* 21 * 48,332 * 3,274	267.30 * 1.39 * 11.57	* 17,359	8,699

* Packages, * seeds, * ears, * quantities, * cuttings, * budsticks.

INCOME

During the year the division has produced plant materials for free distribution for cooperative trial planting, for exchange with foreign governments, firms, institutions and individuals, etc., and for sale through the Extension Division as follows:

Project	Materials	Estimated Value
Cacao and coffee (H-10)	Seedlings and seeds	7,582.60
Citrus (H-8)	Plants	1,347.13
Corn (H-3)	Ears	850.21
Forage (H-6)	Cuttings and rootstocks	654.23
Maguey and shal (H-15)	Plants	10.40
Mango (H-9)	Budsticks and plants	107.23
Miscellaneous agronomy (H-7)	Seeds	1,727.17
Miscellaneous fibers (H-11)	Fibers, seeds and plants	493.43
Miscellaneous horticulture (H-14)	Seeds, suckers, crowns and plants	3,065.28
Rice (H-2)	Seeds	1,847.81
Root crops (H-12)	Cuttings and tubers	87.14
Sugar cane (H-4)	Cuttings and plants	10,438.44
Tobacco (H-5)	Seed and leaves	893.69
Vegetables (H-13)	Seed, fruits and greens	25.70
Total		22,476.46

AGRICULTURAL EXTENSION DIVISION

The policy of the division to be of the utmost service to the public has been maintained and the people as well as the local public officials have shown increased cooperation by soliciting help from the extension agents in various agricultural improvement plans.

Three more provinces have been covered by the field force of the division this year, viz., Leyte with two agents and Zambales and Ilocos Norte with one each. Other provinces asked for the services of agents also but the division had no agents to detail therein.

Distributing rubber seeds and seedlings was a new activity of the division this year, in view of the interest of the public and the passage of Act No. 3230. (A detailed report on rubber appears elsewhere.)

The division supplied seeds and plant materials to 5,911 persons or 681 more than in 1924.

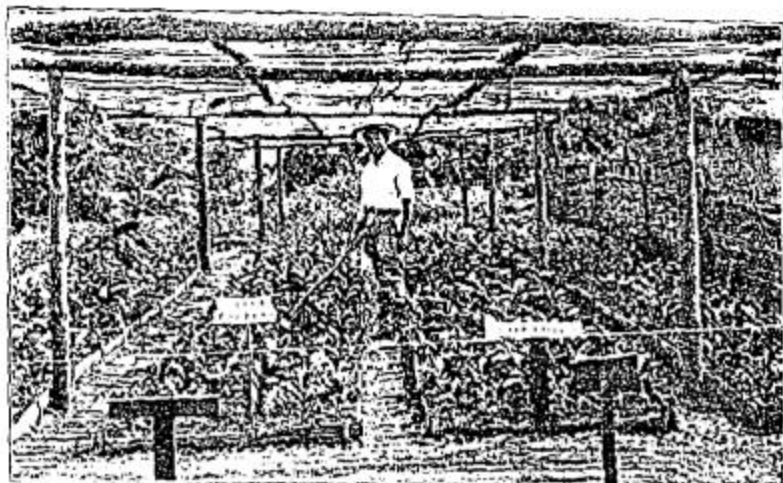
HORTICULTURAL CAMPAIGN

More fruit trees than ever, as shown by the table, were planted in the districts where agents of this division are assigned:

Coffee	102,813
Mango (seedlings)	6,035
Mango (grafted)	411
Citrus (seedlings)	8,730
Citrus (budded)	517
Cacao	8,570
Chico (marrcotted)	159
Rimas	1,001
Kapok	8,015
Lanzon	4,823
Avocado	336
Nangka	2,546
Coconut	31,121
Anonaceous	332
Bananas	13,678
Papaya	3,572
Pineapple	9,311
Miscellaneous fruit trees	3,002

There has always been a marked interest in grafting and budding work and if not for the lack of scions, especially citrus, much more could have been produced.

New use for banana petioles.—In this connection it may be of interest to say that in the Cebu Provincial Nursery banana petioles for grafting have been found to be satisfactory and economical substitutes for the sphagnum moss, manila paper and tying materials used in this work. In all the nurseries where banana plants are available this substitute is being used and the agents in the provinces are now using it in their fruit tree grafting campaign. As this material is within the reach



(a) Coffee seedlings in the Indang municipal nursery



(b) Liberia coffee trees in the plantation of Mr. John Quail, transplanted from the Joro provincial nursery in 1921



Grafted mango, 4 years old, owned by Marcelino Maylubi. Malate, Manila

of any farmer it is believed that it will soon be generally employed by fruit growers.

Field demonstrations.—As in previous year the agents helped the farmers in the different methods of plant propagation right on their farms. There were 1,050 citrus plants budded and 2,148 mango and 56 other trees grafted. There were also 826 chicos, 241 citrus, 279 lanzon, and 103 trees marcotted and 3,159 citrus, 714 coffee, 556 cacao, and 487 other trees pruned.

Private nurseries.—In all places where seedlings could not be obtained from private or our nurseries, efforts were made by the agents to encourage farmers to establish their own nurseries and produce seedlings cheaply, these nurseries being directly supervised by the extension agents. The approximate number of plant materials available in these private nurseries is as follows:

Coffee	71,200
Cacao	6,475
Citrus	22,811
Lanzon	7,220
Mango	797
Rimas	567
Coconut	10,654
Other trees	2,522

The seeds grown in these nurseries were secured locally with or without the aid of the extension agents. Some coffee seeds were supplied by the Bureau.

SEED AND PLANT DISTRIBUTION

Another main activity of the division is the distribution of seed and plant materials direct from the central office and the stations and nurseries under its supervision.

The value of the seeds distributed during the year was ₱7,128.81, of which ₱1,513.19 worth were given free of charge, and that of the plant materials was ₱13,700.78, ₱3,884.46 worth of which were given free. Other distributions made are reported in the station or nursery report from which the distribution was made.

Some of the seeds and plants distributed such as coffee, budded citrus, sugar cane, and other miscellaneous crops were furnished by the Plant Industry Division.

SINGALONG SEED TESTING AND PLANT PROPAGATING STATION

In this, the principal seed and plant distribution center of the division, there were produced during the year 6,757 grafted

mangoes, of which 2,552 have already been distributed. The station spent ₱16,046.08 and produced ₱27,576.33 worth of seed and plant materials, making a net income of ₱11,530.25. It handled 398 shipments of seed and plant materials.

LIPA DEMONSTRATION STATION

During the year there were raised in this station 91,000 seedlings of different fruit trees, of which 59,000 were coffee and 23,000 citrus. Over 42,000 of the coffee seedlings and about 6,000 of the citrus were distributed. Most of the seedlings distributed were planted during 1924.

There are over 23,000 plants of citrus, anonas, mango, and santol in the nursery field for stock purposes. This station spent ₱3,636.02 and produced ₱10,567.34 worth of seed and plant materials, making a net income of ₱6,931.32.

LA PAZ (ILOILO) DEMONSTRATION STATION

During the last half of the year only three projects were engaged in at La Paz; namely, (a) producing seedlings of fruit trees for distribution and demonstrating a model orchard and various methods of plant propagation; (b) propagating improved varieties of sugar cane for distribution; and (c) producing vegetable seeds and raising miscellaneous field crops.

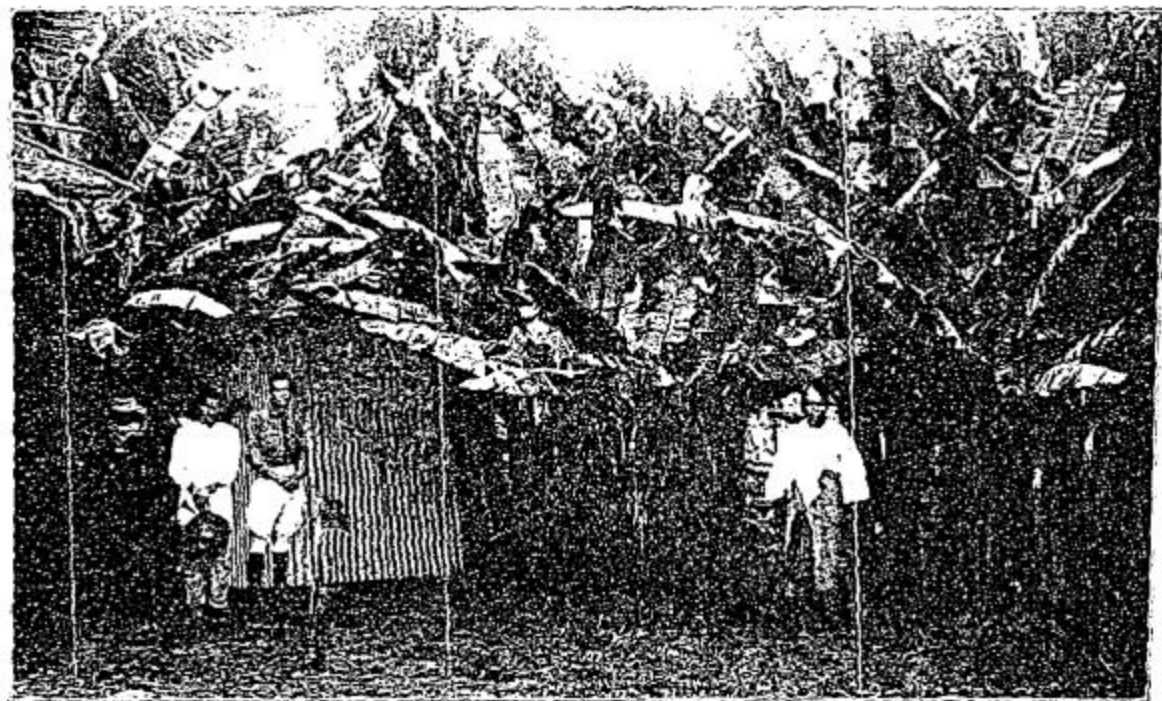
The poultry and swine project in the station has been discontinued since June.

As there is a great demand for grafted and budded plants from this station, efforts were made to produce a good supply and there are now 3,181 mango stocks in the nursery field, of which number 545 are grafted; 1,000 citrus with 244 budded; 159 lanzon with 114 grafted, besides santol and anonaceous plants.

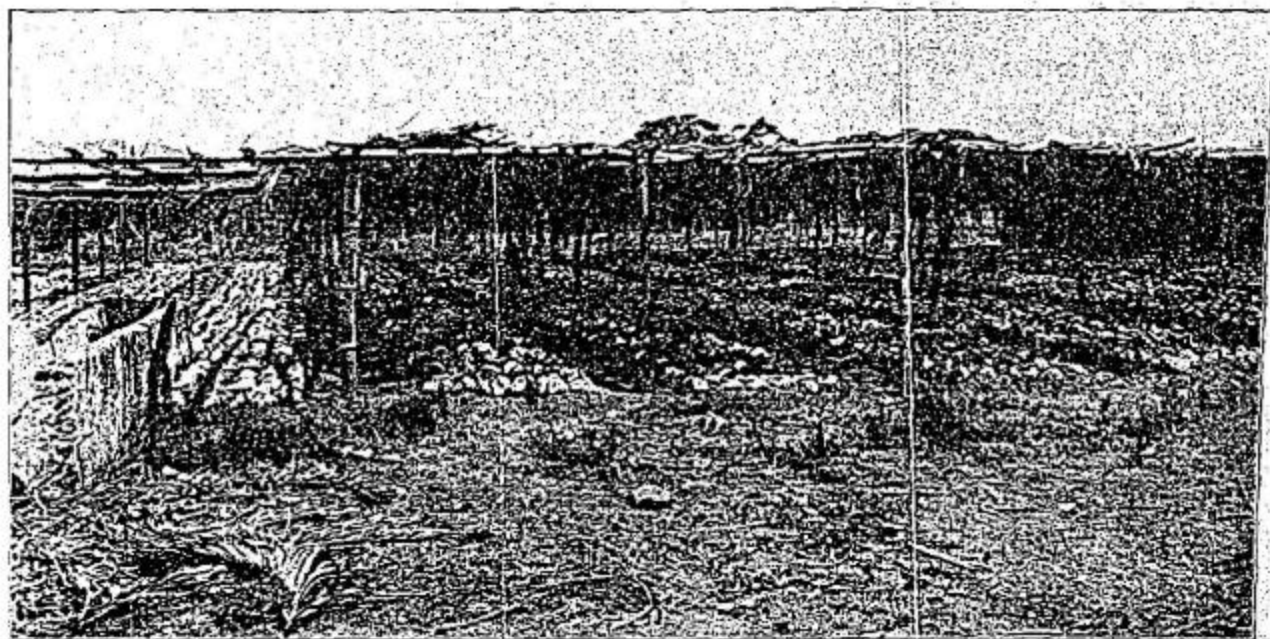
Eighty-seven seedlings of different fruit trees were set out in the model orchard of the station, which has now a total of 922 miscellaneous fruit trees, some of which are either budded or grafted.

The personnel of the station is also extending the scope of its activities outside the station by doing actual marcotting work and grafting and budding trees for the farmers. Lectures were also given on certain occasions.

The station spent ₱2,491.22 and produced ₱4,500.17 worth of seed and plant materials, making a net income of ₱2,008.95.



Abaca trial plot in Cagayan Province



Coconut section of the Batangas municipal nursery

These figures do not include the trees set out in the permanent field in the station, the budded and grafted stocks in the nursery field and the sales from the poultry-swine project.

NURSERIES

There are ten provincial and fourteen municipal nurseries under the supervision of this division. Two of the provincial nurseries are in Cebu and one each in the Provinces of Leyte, Bohol, Laguna, Bulacan, Nueva Ecija, Pampanga, Pangasinan, and La Union.

Not only are fruit trees propagated in these nurseries but some field crops, such as corn, sugar cane, vegetable, forage crops, etc., are produced for distribution purposes. In Santa Barbara, Pangasinan, rice and tobacco are also grown and graded swine and chickens raised to improve the animal breeds in that region.

The following table shows the records of fruit trees distributed and undistributed in these different nurseries during the year:

TABLE X

Kind	Cebu		Bohol		Leyte		Laguna	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee.....	4,697	13,734	.....	2,250	.....	6,250	5,951	6,029
2. Cacao.....	410	158	.....	60	.....	.....	271	118
3. Citrus (seedlings).....	624	5,697	.....	.....	.....	.....	306	1,250
4. Citrus (budded).....	742	425	.....	.....	.....	.....	98	.....
5. Mango (seedlings).....	1,809	9,812	.....	10	.....	.....	434	210
6. Mango (grafted).....	177	249	.....	.....	.....	.....	95	.....
7. Lanson (seedlings).....	352	475	.....	.....	.....	.....	2,227	1,747
8. Lanson (grafted).....	1	19	.....	.....	.....	.....	52	.....
9. Santol (seedlings).....	327	1,080	.....	200	.....	.....	.....	.....
10. Santol (grafted).....	.....	.....	.....	.....	.....	.....	.....	.....
11. Rimas.....	117	.....	.....	.....	.....	.....	.....	.....
12. Nangka.....	335	290	.....	100	.....	.....	.....	.....
13. Pili.....	99	273	.....	700	.....	400	.....	.....
14. Anonaceous.....	64	1,335	.....	.....	.....	.....	.....	.....
15. Coconuts.....	1,001	268	.....	.....	.....	.....	.....	.....
16. Miscellaneous fruit trees.....	2,147	1,939	.....	72	.....	784	449	286

Kind	Bulacan		Nueva Ecija		Pampanga		Pangasinan	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee.....	137	2,559	430	4,774	1,005	2,177	2,591	1,288
2. Cacao.....	.....	.....	175	334	110	.....	980	211
3. Citrus (seedlings).....	1,916	5,756	347	496	1,370	1,107	.....	.....
4. Citrus (budded).....	203	381	9	.....	.....	.....	11	81
5. Mango (seedlings).....	4,794	2,708	482	511	506	894	.....	1,500
6. Mango (grafted).....	84	527	5	15	.....	.....	1,210	500
7. Lanson (seedlings).....	594	1,094	.....	.....	809	145	.....	.....
8. Lanson (grafted).....	.....	.....	.....	.....	.....	.....	2	.....
9. Santol (seedlings).....	.....	176	.....	.....	.....	.....	.....	.....
10. Santol (grafted).....	63	30	.....	.....	.....	.....	.....	.....
11. Rimas.....	.....	.....	.....	.....	.....	.....	346	150
12. Nangka.....	286	541	22	115	.....	.....	274	.....
13. Pili.....	.....	.....	126	875	.....	.....	.....	.....
14. Anonaceous.....	261	1,127	.....	.....	121	282	85	.....
15. Coconuts.....	.....	.....	7,752	10,000	.....	.....	.....	.....
16. Miscellaneous fruit trees.....	3	892	90	1,336	482	1,872	914	.....

Table X—Continued

Kind	La Union		Batangas		Rizal		Cavite	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee.....	2,413	3,710	13,748	11,852	41	128	.....	3,169
2. Cacao.....	2,497	810	533	388	131	.....	.....	459
3. Citrus (seedlings).....	1,760	8,803	630	14,325	.....	694	.....	2,206
4. Citrus (budded).....	363	474	.....	.....	.....	165	.....	.....
5. Mango (seedlings).....	534	1,236	.....	3,964	.....	1,365	.....	445
6. Mango (grafted).....	122	185	.....	.....	8	.....	.....	35
7. Lanzon (seedlings).....	.....	.....	.....	.....	.....	.....	.....	209
8. Lanzon (grafted).....	.....	.....	.....	.....	.....	.....	.....	.....
9. Santol (seedlings).....	32	1,568	.....	.....	.....	.....	.....	.....
10. Rimas.....	1,611	749	.....	.....	.....	.....	.....	.....
11. Nangka.....	2,351	2,670	.....	.....	.....	.....	.....	.....
12. Annonas.....	.....	.....	.....	.....	191	117	.....	29
13. Miscellaneous fruit trees.....	5,134	490	.....	183	8	.....	.....	350

Among the municipal nurseries only the San Pablo (Laguna) Lanzon Nursery sells seedlings. This nursery has sold ₱529.05 worth of lanzon seedlings during the year and has in stock about ₱592.75 worth of seedlings and grafted plants.

The division's activities as to rice during the year consisted mostly of coöperative trial tests, a variety test, a dry season planting test and fertilizer tests in coöperation with the Plant Industry Division. As last year, the work was confined to Pangasinan, Nueva Ecija, Tarlac, and Bulacan.

It is gratifying to note the growing interest being shown by the farmers from year to year in coöperative trial planting. The greater areas planted to some of the Bureau seed palays this year by some of the more progressive farmers give proof of the progress made by the Bureau along this line.

Interest has also been shown in dry season planting in Pangasinan due to the good results obtained at Rosales and Tayug last year. Some of the farmers of Manaoag, San Nicolas, San Quintin, and Umiñgan tried this with fair results this year. The varieties Sipot, Saigorot, and Mangasa were found quite adaptable in Pangasinan for this purpose.

Of the introduced palay in Pangasinan, the Khao Bai Shri, Ramai, Minalabon, Calibo III, Apostol, and Cruz have done well wherever they have been tried.

A preliminary coöperative fertilizer test was conducted in Bulacan, a commercial fertilizer containing 5 per cent N., 8 per cent P_2O_5 , and 10 per cent K_2O being used. Eight coöperators made the tests applying it at the rate of 108 kilos per hectare. An average increase in production of 35 per cent for the different tests over the control tests was obtained. Similar tests will be made next year.



Budded citrus in the citrus section of the Rosario (Batangas) municipal nursery

SUGAR-CANE PROJECT

During the year, 147 coöperators on sugar cane were furnished with cane cuttings in the Provinces of Pampanga, Bulacan, Tarlac, Laguna, and Batangas. Twelve varieties were tried; namely, Badila, Hawaiian-109, Java-247, Luzon No. 2, New Guinea 24-A, Negros Purple, Cebu Purple, Barbados, Yellow Caledonia, Guro, Big Tana, and Luisiana Striped. Those that have shown good results are Badila, Hawaiian-109, Cebu Purple, and Guro. Badila and Hawaiian-109 are in great and increasing demand.

PRODUCERS' COÖPERATIVE ASSOCIATIONS

In the campaign to organize the local producers into coöperative producers' associations, which was continued this year, educational activities to inculcate in the minds of the farmers the benefits that would result from such organizations were stressed and while every effort was made to organize more associations wherever possible yet attention was concentrated on assisting those already organized with their business affairs.

Due to the many difficulties met with both in the campaign and in helping the associations to function, only six of the 24 coöperative producers' associations that existed at the beginning of the year remained active during the year, but two were added, as shown in the following table:

TABLE XI

Provinces	Municipality	Barrio	Date organized	Kind of association
Rizal.....	Taytay.....	Poblacion.....	7-15-23	Mango Coöperative Producers' Association.
Isabela.....	Jones.....	Nemmatan.....	9-17-23	Tobacco Coöperative Producers' Association.
Do.....	Naguilian.....	Minanga.....	-24	Tobacco Coöperative Producers' Association.
Pampanga.....	Mexico.....	Laput.....	9- 7-23	Poultry Coöperative Producers' Association.
Rizal.....	Caloocan.....	Talipapa.....	10-26-24	Poultry Coöperative Producers' Association.
Do.....	Pateros.....	Poblacion.....	10-31-24	Duck Coöperative Producers' Association.

Newly established this year

Rizal.....	Caloocan.....	Tanke.....	IX, 1925	Poultry Coöperative Producers' Association.
Isabela.....	Ecbagde.....	Dugkyong.....	VII, 1925	Tobacco Coöperative Producers' Association.

The Siam-na-Pinagisa Poultry Producers' Association at Talipapa, Caloocan, Rizal, is progressing, having it increased its capital from ₱500 to ₱1,012 this year. The members have

309 fowls, that produced 2,369 eggs, of which 2,283 were sold for ₱106.19. They also sold 37 fowls valued at ₱25.45. The association pays ₱15 monthly to the caretaker.

The Mexico Poultry Coöperative Producers' Association of Mexico, Pampanga is doing well. The laying hens increased from 34 to 84 this year and there are 6 cocks and 4 capons. Eggs laid, 1,581; sold, 1,063; chicks hatched, 389 from 518 incubated.

The Minanga Tobacco Coöperative Producers' Association in Naguilian, Isabela, organized last year, only began to function about the beginning of the year. There are 39 members and they helped each other in the construction of curing sheds. The members were able to plow and plant coöperatively about 16 hectares for tobacco. The association has at present 2,220 fardos of tobacco deposited in a bodega awaiting better prices.

The Nemmatan Tobacco Coöperative Producers' Association in Jones, Isabela, is the most successful association ever organized in the Cagayan Valley by the Bureau. It handles the tobacco crop of the members and got them ₱3.50 per fardo this year, the highest price obtainable in the Valley, to their great satisfaction.

The association was also able to harvest 100 oyones of palay from the forest-leased area in Nemmatan, Jones, which was leased from the Bureau of Forestry last year, and planted 4,125 different varieties of fruit trees valued at ₱521.52.

The Dugayong Tobacco Coöperative Producers' Association was organized in Dugayong, Echague, Isabela, about the beginning of the year. There are, however, only five members working coöperatively in the construction of their tobacco curing house and a tobacco warehouse. The association handles their own crops only.

The Mango Coöperative Producers' Association in Taytay, Rizal, has now been in existence for two years with satisfactory results to the people of the community. A nursery was started by a few interested farmers and later on converted into a municipal nursery. At present there are different varieties of fruit trees ready for distribution.

The Elias Enriquez and Brothers Coöperative Poultry Producers' Association was organized this year in Tanke, Caloocan, Rizal, through the influence of the Siam-na-Pinagisa Poultry Coöperative Producers' Association, an association already in good running order, as beforesaid. With a capital of ₱465 the

association was able to construct a poultry house and start with 125 fowls.

The Samahang Magiitik Coöperative Producers' Association in Pateros, Rizal, is still active. Educational activities make it instrumental in checking the big capitalists from taking undue advantage of the small duck raisers.

VEGETABLE PROJECT

During the year there were 18,301 home gardens and 252 commercial gardens covering an area of 777.55 hectares supervised.

Heavy rains, pests, and diseases greatly reduced the vegetable output, but the farmers planted more than ever to replace the crops thus lost.

MILK PROJECT

Only one agent worked on this project this year in the Provinces of Laguna and Pampanga. The work was purely educational—making actual demonstrations and giving lectures to individual farmers or in groups.

During the year there were 409 caraballa owners advised as to the proper feeds and feeding, care, and management of their animals to obtain more milk.

The campaign for the manufacture of cheese was confined to Laguna and Pampanga. There were 367 kilos of cheese valued at ₱532.50 produced as a result of the actual demonstration made under the improved methods.

The organization of the milk producers, however, was temporarily suspended this year on account of the outbreaks of rinderpest and anthrax occurring in some provinces from time to time.

POULTRY PROJECT

The campaign to increase the number of fowls and the production of eggs through the selection of good breeds, proper care and feeding and the organization of the producers to improve marketing methods was continued this year, especially in Rizal and Bulacan, although all agents in their respective provinces did similar work.

A poultry coöperative producers' association was organized in Tanke, Caloccan, Rizal, and the supervision of farmers engaged in commercial and individual poultry raising continued as usual. Forty-four commercial poultry raisers with a total of 5,758 fowls, besides 3,678 individual poultry raisers having a total of 45,463 fowls were advised and 3,339 capons produced.

Rinderpest and anthrax in some localities retarded progress. There were 2,294 chickens treated and 28 poultry houses disinfected from time to time.

Great interest has been shown by the farmers in the work of the agents in that their services are everywhere solicited especially for caponizing work, securing improved breeds and the treatment of diseases.

Educational work was done with the duck producers to improve the method of marketing their eggs in Manila.

TOBACCO PROJECT

The campaign to increase the production of a superior quality of leaf tobacco was continued this year by the six tobacco inspectors and one agricultural extension agent, all assigned in the provinces of Isabela and Cagayan. The work was mainly along educational and extension lines, special attention being given to proper cultural methods, curing and fermentation, and the classification and marketing of the leaf through the organization of the growers.

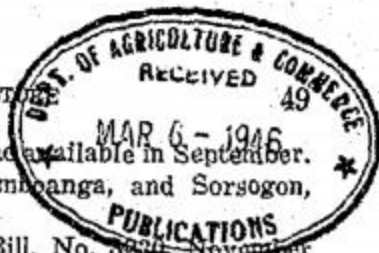
Actual demonstrations were made, lectures were given, conferences were held with the individual farmers and circulars distributed. Twenty gantas, 78 packets and 820 grams of improved tobacco seeds were distributed to 204 tobacco planters for trial work during the year. These varieties consisted of Sumatra, Anipa Sumatra, Florida Sumatra, Anipa Broad Leaf, Baker's Sumatra, Medium Repollo, and the Pampano varieties. Florida Sumatra and Sumatra showed excellent results in Cagayan and Baker's Sumatra in Isabela both as to quality and production.

Materials furnished.—The farmers were also furnished by the Bureau and helped to secure tobacco seeds and seedlings. After the floods in the Cagayan Valley there were distributed 164,600 tobacco seedlings to replace those destroyed in the seedbeds.

They were also told how to construct curing sheds according to the revised regulations as amended, and helped to plant supplementary crops such as corn, rice, root crops, and fruit trees so that they would not be forced to sell their tobacco crop at a low price in time of need.

RUBBER DISTRIBUTION

The rubber agitation which began along about July of this year resulted in some 300 written requests for information and



planting materials, but seeds only became available in September. They were secured from Basilan, Zamboanga, and Sorsogon, and were from Para rubber trees.

Before the passage of the Rubber Bill, No. 3230, November 14, 1925, there had already been distributed 61,695 Para rubber seeds valued at ₱587.56 and 1,000 seedlings worth ₱60. During the year there was a total distribution of 108,859 Para rubber seeds valued at ₱1,222.17. Two thousand seedlings were purchased from Sorsogon for immediate distribution. Many inquiries in the Central Office and in the field were attended to. About 500 copies of circulars in English and in Spanish on rubber were distributed through this division during the year.

PLANT PESTS CONTROL DIVISION

LEGISLATION

Act No. 3163, which provided for the organization of scouting parties, was made operative only from the date of its enactment up to and including December 31, 1924, but this work being so important ₱100,000 was provided by Act No. 3217 (1925 Appropriation Act) to be disbursed in the same manner and for the same purposes as the funds appropriated by Act No. 3163. And in order that any of the unexpended balance of the ₱100,000 appropriated by Act No. 3217 for locust scouting work in the isolated places might be made legally available for paying the salaries and wages and other necessary expenses for the extermination of locusts in the cultivated places, Act No. 3223 was passed by the Seventh Legislature, and approved by His Excellency the Governor-General on October 19, 1925.

ADMINISTRATIVE ORDERS

During the year Administrative Orders No. 51 and 52 were promulgated by the Director of Agriculture in accordance with the Plant Quarantine Act No. 3027.

Administrative Order No. 51 put an interprovincial quarantine on all plants of the species of the genus *Musa*, in order to prevent the spread of the two dangerous plant diseases known as "heart-rot" and "root-rot" (bunchy-top), and revoked Bureau of Agriculture Administrative Orders Nos. 26 and 45; and Administrative Order No. 52 contains regulations governing the removal of sawdust, bagasse, and other vegetable matter or rubbish, from and near coconut groves; and declares the black beetle (*Oryctes rhinoceros*) to be a dangerous plant pest.

ACTIVITIES

The activities of the division during the year were confined to the following:

1. Administrative work.
2. Locust extermination work.
3. Inspection of incoming and outgoing plant materials.
4. Inspection of fields, orchards or gardens for the control of plant pests and diseases.
5. Collection and identification of insect pests and diseases of plants.
6. Survey and eradication of coconut budrot and other diseases and pests.
7. Survey and eradication of abaca diseases and pests.
8. Survey and eradication of *Loranthus* parasite of citrus and bark-ret diseases of the same host.
9. Entomological and phytopathological research work.

ADMINISTRATIVE WORK

Information service.—As usual, the division had an immense amount of correspondence to attend to, both routine and special, in connection with pests and diseases and there were many visitors seeking information and advice or special permits under quarantine orders, in the Central Office.

Contributions and gratuities funds.—Funds to the amount of ₱23,800, from the contribution and gratuities funds of this division, were allotted to the provinces to assist them in their campaign against agricultural pests and diseases as follows.

TABLE XII.—Showing distribution of contribution and gratuities funds

Province	Purpose		
	Locust extermination work	Coconut pests and diseases eradication	Abaca pests and diseases eradication
Batangas.....		₱500	₱500
Camarines Norte.....		500	500
Camarines Sur.....		500	500
Cavite.....		3,000	1,000
Cebu.....	₱5,000		
Davao.....		1,000	1,000
Laguna.....		6,000	2,000
Leyte.....			500
Mindoro.....		500	
Negros.....	1,500	500	
Oriental Negros.....	2,000		
Pangasinan.....		1,000	
Samar.....			500
Sulu.....	500		
Taybas.....	500	3,000	500
Zamboanga.....	500	1,000	500
Total.....	10,500	15,500	7,500

Balance of locust funds in the provinces at end of year.—Table XIII shows the balance of locust funds in each province. This fund is obtained from three sources; namely, (1) insular aid; (2) redemption fund (collected in accordance with section 15 of Act No. 2472); and fund from the regular appropriation of the province.

TABLE XIII.—Balances of locust funds (Act No. 2472) in the provinces at end of year

Provinces	Balance	Month reported
Abra.....	7892.60	November.
Aguilan.....	483.52	September.
Albay.....	969.17	October.
Antique.....	1,118.49	Do.
Bataan.....	645.23	June.
Batanes.....	1,010.72	October.
Batangas.....	2,025.50	Do.
Bohol.....	1,150.59	November.
Bulacan.....	716.62	June.
Bukidnon.....	885.78	October.
Cagayan.....	1,920.65	September.
Camarines Norte.....	300.00	November.
Camarines Sur.....	300.00	Do.
Capiz.....	4,124.34	May.
Cavite.....	556.57	September.
Cebu.....	8,867.13	October.
Cotabato.....	2,476.96	November.
Davao.....	515.19	June.
Ilocos Norte.....	765.58	October.
Ilocos Sur.....	471.00	November.
Iloilo.....	28.00	June.
Isabela.....	537.03	September.
Laguna.....	1,169.65	October.
Lanao.....	817.68	Do.
La Union.....	300.00	December.
Leyte.....	4,234.26	October.
Marinduque.....	983.62	November.
Masbate.....	418.97	Do.
Mindoro.....	2,152.66	April.
Misamis.....	2,003.00	October.
Mountain Province.....	1,031.33	Do.
Nueva Ecija.....	2,995.33	November.
Nueva Vizcaya.....	1,781.96	Do.
Occidental Negros.....	450.07	October.
Oriental Negros.....	778.41	March.
Palawan.....	134.75	October.
Pampanga.....	6,287.24	November.
Pangasinan.....	1,006.00	October.
Rizal.....	300.00	Do.
Romblon.....	200.00	November.
Samar.....	1,853.15	October.
Sorsogon.....	250.70	Do.
Sulu.....		
Surigao.....	563.02	November.
Tarlac.....	300.06	October.
Tayabas.....	723.35	November.
Zambales.....	506.00	October.
Zamboanga.....	500.06	September.

It will be noted from table XIII that every province has a healthy balance of locust funds, the aggregate being over ₱58,085.88.

LOCUST SCOUTING FUNDS

TABLE XIV.—*Distribution of locust scouting funds to December 31, 1925*

ADVANCED TO PROVINCES	
Province	Amount advanced
Bohol	P6,000.00
Cagayan	5,000.00
Cotabato	3,000.00
Bukidnon	3,000.00
Misamis	1,000.00
Mindoro	3,000.00
Mountain Province	3,500.00
Isabela	6,000.00
Nueva Ecija	6,000.00
Tayabas	5,500.00
Zamboanga	1,000.00
Total	P48,000.00
MISCELLANEOUS EXPENSES	
Traveling expenses of personnel	19,207.83
Freight, express, and delivery service	2,086.21
Postal, telegraph, and cable service	820.53
Consumption of supplies and materials	10,151.25
Maintenance and repair of equipment	000.00
Other service	14.37
Purchase of equipment	2,013.53
Total	34,899.73
Grand total	82,899.73

LOCUST EXTERMINATION

As last year, the locust extermination work consisted of (1) the general locust campaign and (2) the locust scouting.

General locust campaign.—This comprised the work of exterminating locusts in the populated regions in accordance with Act No. 2472, supplemented by Act Nos. 3146 and 3223, both providing for sources of additional funds for this purpose.

The locust infestation during 1925 was less serious than usual, at the beginning of the year there having been but 45 towns infested, as compared with 50 in 1924. The lowest point of infestation was reached late in February, when only 18 towns were reported infested as against 34 for the preceeding year. At the height of infestation (during July, August, and September) all available forces of the Bureau were employed, and the Honorable, the Secretary of Agriculture and Natural Resources, solicited the cooperation of all the provincial and

municipal officials, through the Chief of the Executive Bureau. The maximum number of towns infested was 121, while in 1924 it was 208.

When the newly elected officials took office in October a vigorous campaign was waged throughout the Islands, resulting in the diminishing of the pests towards the end of the year, when 51 towns only remained infested.

The three most seriously infested provinces were:

1. Tabuk and the provincial district of Kalinga, Mountain Province, lying in a great grassy valley that is an ideal breeding place for locusts. The swarms in Cagayan and Isabela probably came from there.

2. The region on either side of the mountains in the Bondo Peninsula in Tayabas, which is grassy and but sparsely settled.

3. The Province of Bohol, which is continuously infested because of the central plateau, where there are dense cogonales whence locusts swarm over not only the rest of the island but also over the surrounding Provinces of Leyte, Cebu, Oriental Negros, and Misamis.

The infestations are summarized in Table XV, compiled from data submitted by provincial governors, constabulary commanders, and locust inspectors of the Bureau.

TABLE XV.—Showing locust infestations during the year 1925.

Province	Number of municipalities			Chronological status 1925
	Infested	Freed	Still infested	
1. Batanes.....	1	1	0	July 20 to July 27.
2. Bohol.....	26	23	13	January 6 to December 31.
3. Camarines Norte.....	8	8	0	August 28 to November 28.
4. Camarines Sur.....	1	1	0	October 1 to December 4.
5. Cagayan.....	23	16	8	January 3 to December 31.
6. Cebu.....	44	37	7	June 17 to December 31.
7. Iloilo.....	1	1	0	July 8 to July 21.
8. Isabela.....	13	9	4	February 7 to August 15; and from August 22 to December 31.
9. Iloilo.....	1	1	0	May 26 to June 9.
10. Leyte.....	18	17	1	July 27 to August 6 and from August 10 to December 31.
11. Masbate.....	3	2	2	July 27 to August 6; and from August 10 to December 31.
12. Mindoro.....	1	1	0	January 2 to January 31.
13. Misamis.....	8	3	5	January 3 to December 31.
14. Mountain Province.....	13	7	6	January 3 to December 31.
15. Nueva Ecija.....	17	17	0	May 11 to August 17.
16. Nueva Vizcaya.....	8	6	2	March 7 to December 31.
17. Occidental Negros.....	2	2	0	July 23 to September 12.
18. Oriental Negros.....	23	23	0	June 14 to December 10.
19. Sulu.....	1	0	1	September 12 to December 31.
20. Surigao.....	1	1	0	June 13 to June 25; and from July 3 to August 3.
21. Tayabas.....	7	6	2	January 3 to December 31.
22. Zamboanga.....	6	6	0	January 12 to November 7.
Grand total.....	215	186	51	

Provinces infested with locusts during the year 1925.... 22

Provinces freed from locusts infestation during the year..... 11

Provinces still infested..... 11

Provinces doing extermination work under Act No. 2472.—All the provinces listed in Table XV did extermination work under Act No. 2472, except the Province of Cagayan.

Provinces enforcing Act No. 3146.—Act No. 3146 was enforced in the Province of Cagayan with difficulty; rejected in the Province of Bohol; and being considered in the Provinces of Camarines Norte and Nueva Vizcaya.

The work of the provinces.—Under Act No. 2472 most of the provinces rendered excellent service, with little or no financial assistance from the Bureau of Agriculture.

In some badly infested provinces, provincial inspectors were employed by the province. For the sake of efficiency, they were put under the supervision of the Insular locust inspectors.

Much praise is due to the provincial and municipal officials of the locust infested provinces in general for their locust campaigns. Batangas Province was reported infested on July 20, but due to the vigorous campaign waged by the officials it was freed from locusts by July 27. Camarines Sur was reported infested August 28, and freed November 28. Iloilo was reported infested from July 9 and freed July 28.

Occidental Negros was infested from July 29 to September 12; and the provincial and municipal officials of Surigao cleared that province between June 13 and August 3.

There were some cases of official negligence, however, that had to be taken up with the executive authorities.

The work of the Bureau of Agriculture.—Locust inspections were made by the inspectors of the Bureau in all the infested provinces, except in the Provinces of Lanao, Masbate, Sulu, and Surigao.

LOCUST SCOUTING

The same general plan was followed in the year under consideration as in 1924. The work started in the Provinces of Bohol, Cagayan, Isabela, Mindoro, Mountain Province, Nueva Ecija, Nueva Vizcaya, and Tayabas was resumed in April and extended to the Provinces of Bukidnon, Cotabato, Misamis, and Zamboanga.

Airplane scouting.—Scouting parties, with the aid of the Bureau airplane, were mainly responsible for cleaning up Mindoro, which was reported infested from January 3 to January 31, and remained free of locusts the rest of the year. Thereafter, the airplane was used in locating the breeding of the locusts, until it had to be shipped to Manila in August, 1925, for overhauling.

Comparative success.—The success of the locust scouting may be noted by comparing the locust infestation graphs for the last three years (1923, 1924, and 1925), which show that when work was done in the isolated places last year the infestation was less than in 1923 and 1924. Obviously the locust situation cannot but become less serious year by year if locust scouting work is continued.

TABLE XVI.—Showing summary of quantities of locusts destroyed and amount of damage done to crops by the locusts during the year 1925

Province	Amount of locusts destroyed					
	Eggs		Hoppers		Flies	
	Cavases	Gantas	Cavases	Gantas	Cavases	Gantas
1. Batanes			1	3		15
2. Bohol	109	14	4,734	5	1,898	19
3. Cagayan			2,564	138	394	89
4. Camarines Norte			105	15	725	
5. Camarines Sur			5		102	
6. Cebu	305	17	9,789	6	2,036	
7. Iloilo		10				
8. Isabela			5,462	2	1,123	
9. Lanao						
10. Leyte	146	38	904	1	680	13
11. Masbate	1	20	449	46	369	15
12. Mountain Province	26	17	1,605	9	840	24
13. Mindoro					5	
14. Misamis	2	24	940	23	266	
15. Nueva Ecija	1	3	521	13	911	2
16. Nueva Vizcaya		13	2,324	478	632	21
17. Occidental Negros			3	5		
18. Oriental Negros			5,394		2,266	5
19. Sulu						
20. Surigao				21	4	12
21. Tayabas			123		1,207	107
22. Zamboanga	5		289		297	
Grand total	691	20	35,468	21	13,621	15

Province	Damage				
	Rice in hectare	Copra in hectare	Sugar cane in hectare	Cocunut number of trees	Miscellaneous crops in hectare
1. Batanes					
2. Bohol	320	245	98	6,448	54
3. Cagayan	63	65	1		1
4. Camarines Norte	16	3		1,009	16
5. Camarines Sur		6			
6. Cebu	51	3,962	243	42,243	113
7. Iloilo					
8. Isabela	1		1		
9. Lanao					
10. Leyte	58	20	11	96	
11. Masbate					
12. Mountain Province	18	11			
13. Mindoro					
14. Misamis	28	1,213		3,070	16
15. Nueva Ecija		2			
16. Nueva Vizcaya		7	9		6
17. Occidental Negros					
18. Oriental Negros	2	135	4		
19. Sulu					
20. Surigao	10	16	734		
21. Tayabas	72	71		351	63
22. Zamboanga					
Grand total	779	5,747	410	54,015	267

TABLE XVII.—*Showing the number of municipalities and sitios inspected and the amount of locusts caught and destroyed*

Province	Number of municipalities		Number of sitios	
	Inspected	Infested	Inspected	Infested
1. Bohol.....	9	8	322	120
2. Bukidnon.....	4	.....	181	.....
3. Cagayan.....	14	15	390	171
4. Cebu.....	2	.....	8	.....
5. Iloilo.....	12	7	174	60
6. Isabela.....	4	1	260	4
7. Mindoro.....	7	0	98	19
8. Misamis.....	10	5	142	37
9. Mountain Province.....	6	1	172	26
10. Nueva Ecija.....	7	5	92	59
11. Nueva Vizcaya.....	6	5	244	108
12. Taybas.....	1	1	22	1
12. Zamboanga.....	1	1	22	1
Grand total.....	81	52	2,105	571

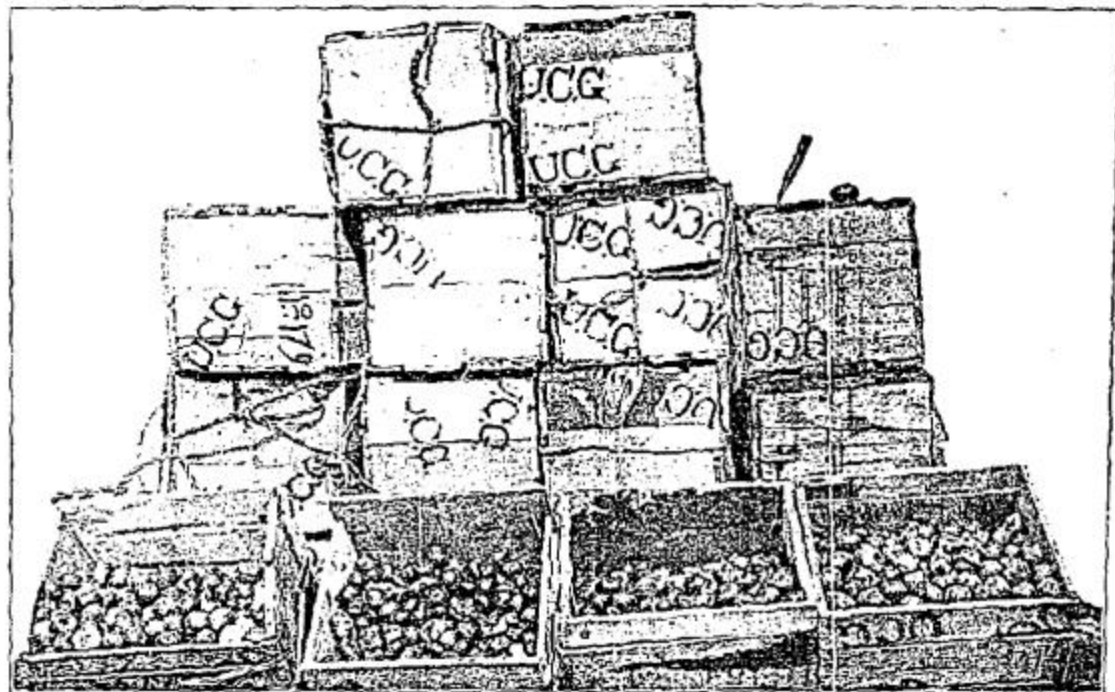
Province	Isolated places in hectares				Locust caught in canvases		
	Approximate areas	Area inspected	Area uninspected	Area infested	Eggs	Hoppers	Flyers
1. Bohol.....	150,000	84,941	75,059	2,318.5	2.50	2,170	306
2. Bukidnon.....	840,000	115,024	224,000	.....	.....	.....	.....
3. Cagayan.....	200,000	137,000	63,000	652	1	1,564	621
4. Cebu.....	1,300,000	204,850	795,150	.....	.....	.....	.....
5. Iloilo.....	800,000	50,286	249,714	1,274	9	616	316
6. Mindoro.....	340,000	86,250	303,750	400	.....	75	5
7. Misamis.....	180,000	12,674	167,326	126	.....	.....	37
8. Mountain Province.....	900,000	51,535	848,465	805	71.50	3,154	218
9. Nueva Ecija.....	240,000	130,524	109,476	304	.....	520	9
10. Nueva Vizcaya.....	150,000	17,910	132,109	982	12	917	617
11. Taybas.....	998,000	2,601	995,400	843	.....	453	529
12. Zamboanga.....	480,000	3,552	476,448	118	9	.....	30
Grand total.....	5,288,000	848,377	4,439,623	7,834.5	106.12	10,188	2,687

INSPECTION OF INCOMING AND OUTGOING PLANT MATERIALS

The activities of the plant quarantine service at all the plant quarantine ports; namely, Manila, Cebu, Iloilo, and Zamboanga, were confined to inspecting imported and exported plant materials in accordance with the various administrative orders promulgated by the Director of Agriculture under the Philippine Quarantine Act (No. 3027).

Inspection of vessels, baggage, and passengers.—All vessels from foreign countries (including round-the-world tourist ships) were boarded and searched for contraband plant materials.

Inspection and certification of incoming plant materials.—After the inspection of the vessels and baggage, the inspection of the cargo was next made, that is, all fruits, vegetables, living plants, cuttings, seeds and other plant materials coming to the Philippines from foreign countries were inspected. Plants arriving at the port by mail were also inspected upon notification



varietal

Oranges of the Red Kid variety from Amoy, China intercepted by the plant inspectors at the Port of Manila because infested with black rot, canker, and *malanose*.

of the presence of such plant materials in the post office. The inspection for the purpose of determining whether such shipment should be passed or destroyed is the same as for materials coming through the customhouse.

Prohibited plant materials allowed under permit.—Six permits were issued for the importation of prohibited plant materials for food and propagation purposes. Those for propagation were quarantined in isolated places on land belonging to the permittees.

Imported nursery stocks, cuttings, seeds and other plants passed for propagation purposes.—The total number of parcels of these plant materials which entered all the ports of entry was 1,871. These were mostly inspected in the post office.

TABLE XVIII.—*Résumé of inspections and interceptions of plant materials*

Number of ships inspected from foreign ports.....	907
Number of passengers arriving from all countries.....	56,248
Number of passengers arrived from fruit-fly infested countries.....	3,714
Number of pieces of baggage inspected.....	17,994

NUMBER OF PARCELS INSPECTED

Arriving through the customhouse:	
Passed	855,646
Treated and passed.....	231
Partly selected and passed.....	8,335
Partly selected and destroyed.....	656
Contraband:	
Destroyed	64
Returned	372
Placed under quarantine.....	5
Passed under permit.....	94
Total	865,403
Arriving by mail:	
Passed	1,073
Treated and passed.....	19
Partly selected and passed.....	3
Partly selected and destroyed.....	1
Contraband:	
Destroyed.....	4
Returned	0
Placed under quarantine.....	0
Passed under permit.....	3
Total	1,103
Total passed.....	856,719
Total parcels treated.....	250
Total parcels partly selected and passed.....	8,338
Total parcels partly selected and destroyed.....	657

Number of parcels inspected—Continued

Total parcels contraband:

Destroyed	68
Returned	372
Placed under quarantine	5
Passed under permit	97

Grand total parcels inspected..... 866,506

VIOLATION OF ADMINISTRATIVE ORDERS

Between 400 and 500 parcels of contraband plant materials were intercepted by the plant quarantine inspectors during the year. These were mostly sugar cane, citrus, rice, bamboo, and pineapples.

There were also slight violations of the plant quarantine rules and regulations, for example, the removal of plant materials from the piers, without their having been previously inspected and certified to by a plant quarantine inspector. The offending parties were duly admonished.

PATHOLOGICAL AND ENTOMOLOGICAL INTERCEPTIONS

TABLE XIX.—Showing pathological interceptions

Country of origin and disease	Host	Intercepted in
CHINA		
<i>Cladosporium</i> sp. (Citrus scab)	Oranges.....	Manila.
<i>Phoma citricarpa</i> (black spot)	do.....	Manila and
<i>Phomopsis citri</i> (Melanose)	do.....	Cebu.
<i>Penicillium</i> sp. (Green mold)	Garlic.....	Manila.
<i>Penicillium</i> sp.	Orange.....	Iloilo.
<i>Penicillium</i> sp.	Litchi and beets.....	Cebu.
<i>Fusarium</i> sp. (soft rot)	Lily root, taro.....	Manila.
<i>Fusarium</i> sp.	Irish potatoes.....	Do.
<i>Fusarium</i> sp.	Ginger.....	Cebu.
<i>Fusarium</i> sp.	Irish potato.....	Zamboanga.
Dry rot.....	Onion.....	Manila.
Spot on pear.....	Pears.....	Cebu.
<i>Peridermium campestris</i> (black rot)	Cabbage.....	Zamboanga.
<i>Lasiodiplodia</i> sp.	Sweet potatoes.....	Do.
<i>Venturia pyrina</i> (scab)	Pears.....	Manila.
<i>Rhizopus</i> sp.	Taro and sweet potato.....	Do.
UNITED STATES		
<i>Penicillium</i> sp.	Cherry, grapefruit, apple, orange, and plum.....	Do.
<i>Alternaria brassicae</i>	Cabbage.....	Do.
<i>Alternaria dianthi</i>	Melon and tomatoes.....	Do.
<i>Alternaria</i> sp.	Cantaloup.....	Do.
<i>Cladosporium</i> sp.	Grapefruit.....	Do.
<i>Isdemumiliatum</i> sp. (Anthracnose)	Pears and pears.....	Do.
<i>Rhizopus</i> sp.	Peaches and plums.....	Do.
<i>Pestalotia palmorum</i>	<i>Dorycnthus excolae</i>	Do.
<i>Pestalotia guypini</i>	Logan berries.....	Do.
<i>Coryneum beyerinckii</i>	<i>Fusicladium</i> sp.	Do.
<i>Phoma</i> sp.	Melon.....	Do.
Bacterial discolor.....	Grapefruit.....	Do.

TABLE XIX.—Showing pathological interceptions—Continued

Country of origin and disease	Host	Intercepted in
SINGAPORE		
<i>Aspergillus niger</i>	Mangosteens.....	Manila.
<i>Pestalotia palmarum</i>	Palm.....	Do.
AUSTRALIA		
<i>Venturia inaequalis</i>	Apples.....	Zamboanga.
BORNEO		
<i>Pseudomonas citri</i>	Pomelo.....	Do.
<i>Penicillium</i> sp.....	do.....	Do.
<i>Meliola citri</i>	do.....	Do.
HONGKONG		
Dry rot.....	Galle.....	Hollo.
JAPAN		
<i>Pseudomonas citri</i>	Citrus.....	Zamboanga.

TABLE XX.—Showing entomological interceptions

Origin and pests	Host	Intercepted in
UNITED STATES		
Scale insects.....	Lemon.....	Manila.
<i>Chrysomphalus auranti</i> (scale).....	do.....	Do.
<i>Carpocapsa pomonella</i> (Larva).....	Apple.....	Do.
Red Scales.....	Grapefruit.....	Do.
CHINA		
Beetle.....	Cacao.....	Cebu.
Weevil.....	Bean.....	Do.
Scale insects.....	do.....	Do.
<i>Euthrips purt.</i>	Orange.....	Do.
Scalies.....	Pear.....	Zamboanga.
Aphids.....	do.....	Do.
Bug.....	Cabbage.....	Do.
Caterpillar.....	do.....	Do.
<i>Pseudococcus</i> sp.....	Litchi.....	Manila.
Scalies.....	Grass.....	Zamboanga.
Gall insect.....	Guilquin.....	Manila.
<i>Carpocapsa pomonella</i>	Apple.....	Do.
Borer.....	Litchi.....	Do.
SINGAPORE		
<i>Pseudococcus</i> sp.....	Mangosteens.....	Do.
Scalies.....	Apple.....	Do.
JAPAN		
Scalies.....	Cyrtus sp.....	Zamboanga.
SPAIN		
Weevil.....	Bean.....	Hollo.
AUSTRALIA		
<i>Aspidiotus</i> sp.....	Apples.....	Zamboanga.

INSPECTION AND CERTIFICATION OF OUTGOING PLANT MATERIALS

Plant materials intended for exportation are also inspected in the plant quarantine ports and the majority either fumigated or disinfected before certification.

TABLE XXI.—Showing the number of parcels certified and exported to the different countries

Country	Number of parcels	Country	Number of parcels
China.....	33	Brazil.....	2
Japan.....	46	Mauritius Islands.....	2
Java.....	39	Queensland.....	1
Holland.....	8	Panama, Canal Zone.....	21
Straits Settlements.....	8	Central America.....	36
United States.....	45	Portuguese Indies.....	4
Rhodesia.....	4	Ecuador.....	1
Guam.....	6	England.....	6
Norocco.....	4	South Africa.....	3
Australia.....	7	Central Africa.....	1
New South Wales.....	1	Ceylon.....	1
Cuba.....	2	South America.....	2
New Guinea.....	1	Santo Domingo.....	1
Seychelles Island.....	3	Singapore.....	4
France.....	1	Hongkong.....	1
Palm City.....	2	Samoa.....	1
India.....	16	Germany.....	1
Formosa.....	6	Sweden.....	1
Total.....			318

INSPECTIONS OF FIELDS, ORCHARDS, AND GARDENS FOR THE CONTROL OF PESTS AND DISEASES

Owing to the limited number of technical men of the division, it was only in serious cases that men could be sent to places where infestation of insect pests or outbreaks of diseases occurred to investigate and to explain to and actually show the farmers and other parties interested how to control such pests and diseases.

PLANT PESTS

Insect pests.—Rice insects, the rice bug (*Leptocoris acuta*), the rice stem borer (*Schoenobius incertellus*), the rice caterpillars (*Spodoptera mauritia* and *Prodenia litura*) and the rice case worm (*Nymphula depunctalis*) were the most common causes of complaints during the year, especially from the Provinces of Laguna, Pangasinan, Nueva Ecija, Tarlac, Pampanga, Bulacan, La Union, Ilocos Norte, Batangas, Iloilo, and Zambales. Extended field trips were made by our inspectors in those provinces and personal help and advice were given the farmers. Copies of our publications on the pests were distributed and lectures given.

Of the rice insects mentioned, the grass army worm (*Spodoptera mauritia*) was especially troublesome in May and June, 1925, over extensive areas in Batangas, Cavite, Laguna, Rizal, and Mindoro and in other provinces.



Papaya trees (Pasay, Rizal) showing damage done by grubs of the "toy beetle"

The grubs of the "toy beetle" (*Leucophelia irrorata*) were also troublesome. Various municipalities in Batangas, especially Balayan, Tanauan, and Lipa, from which most of the complaints regarding the grubs came, were visited by our inspectors, and methods of control explained.

In Davao an outbreak of caterpillars known locally as "pague-pague" occurred in July, 1925. About 1,000 trees had their leaves almost completely eaten up by the caterpillars. These caterpillars were those of the real or common "pague-pague," the coconut slug-caterpillars, *Thosea cinereamarginata*.

In Tacloban, Leyte, the black or rhinoceros beetle (*Oryctes rhinoceros*) did so much damage to coconut trees in Abuyog in July as to discourage the farmers from planting more coconuts.

Administrative Order No. 52 of the Bureau of Agriculture, which compels the people to clean their premises and their groves to prevent the increase of the rhinoceros beetles was furnished the officials concerned. The enforcement of this administrative order will indirectly control the weevil (*Rhynchophorus ferrugineus*), which is also a common cause of complaints from coconut planters, as the disposal of coconut stumps and dead trees, as required by that administrative order, will deprive it of breeding places, to a great extent.

Miscellaneous pests.—In a survey made at Fort Mills, Corregidor Island in the latter part of 1925, termites were found to have caused the death of many ornamental shrubs and shade and fruit trees. Personal inspection was made and detailed control measures were furnished.

Rats were reported to be devouring much rice in Iloilo, Samar, Mindoro, Laguna, Nueva Ecija, and Rizal. In most cases white arsenic was furnished free to the parties requesting help from the Bureau. The people in many places have used this chemical before and obtained satisfactory results.

Wild hogs, crows, mayas, bats, slugs and snails; and white ants, aphids and other insect pests did damage to some extent also. When possible men were sent from the Central Office to investigate and advise the farmers what to do, or to do it for them. Otherwise, letters and circulars were sent to the parties complaining.

A single report of trouble due to earthworms that were boring through the dikes and thus draining the water from the rice paddies was received from the Mountain Province.

PLANT DISEASES

Rice diseases.—The most common diseases of rice found in the different provinces so far surveyed are as follows: *Piricularia oryzae*, *Cercospora oryzae*, *Helminthosporium* sp. and *Phyllosticta muirai*. The usual measures for controlling these were advised to the farmers during the survey made by each inspectors. However, the damage caused by these diseases were not so serious as that done by the insect pests attacking rice.

Citrus diseases.—The most common citrus diseases reported during the year were gummosis, canker and foot-rot.

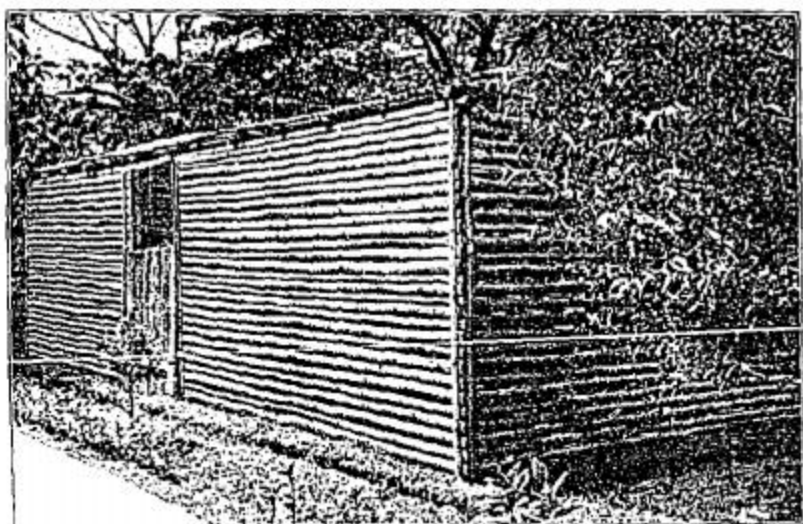
Abaca diseases.—A fungus disease belonging to the genus *Narasmus* and Mosaic, the latter locally called "Cabilao" or "Boliris" were reported from Almagro, Samar, in March, 1925. A brown leaf spot disease was reported from Calapan, Mindoro. The prevalence of heart-rot and bunchy-top diseases is given elsewhere in this report.

Banana diseases.—Abaca heart-rot and bunchy-top, were both reported from the municipality of Lilio, Laguna, as infecting some banana plants there. The two leaf spots caused by the fungi *Mycosphaerella muscae* and *Macrophoma musae* were both reported from the municipality of Santa Cruz of the same province. Banana wilt was reported from Quingua, Bulacan, and from Cuenca, Batangas.

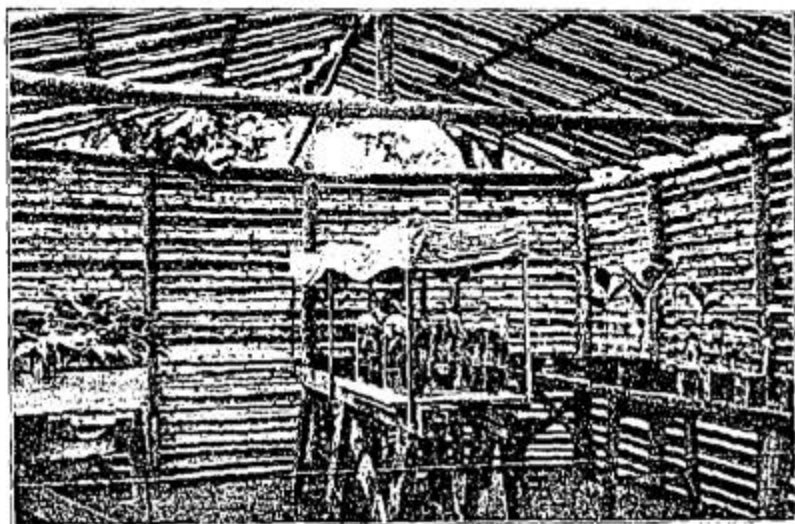
Coconut diseases.—The most important diseases of coconut reported and attended to this year are the bud-rot and stem-bleeding (*Thielaviopsis* sp.) in Laguna, Cavite, Tayabas, Batangas and Zamboanga; leaf spot (*Pestalozzia palmarum*) in Naujan, Mindoro, and in Tacloban, Leyte, and other places, nut-fall in Laguna, Tayabas, and Palawan; and leaf blight (*Phyllosticta* sp.) in Manila on the plants owned by the Philippine Manufacturing Company.

Agave diseases.—Besides anthracnose (*Colletotrichum agaves*) on maguey (*Agave cantala*), three new diseases of agave plants were reported this year. Mosaic or yellow spot was found attacking maguey and sisal leaves and *Helminthosporium* sp. on henequen. The specimens were received from Cebu.

Sugar-cane diseases.—The important diseases and pests of sugar cane investigated by the different inspectors were: Fiji and Mosaic in Almagro, Samar, and an unknown leaf-spot disease and *Aeginetia indica* in Lipa, Batangas; rind disease in Santa Cruz, Laguna; and sugar-cane wilt (*Cephalosporium sacchari*) in Tayug, Pangasinan.



(a) Exterior view of the Greenhouse



(b) Interior view of the Greenhouse

Coffee diseases.—The diseases of coffee caused by rust (*Heemileia vastatrix*) and a disease caused by a species of *Fusarium* were the subjects of complaints from Laguna and Batangas.

Tobacco disease.—Tobacco brown wilt (*Bacterium splanacearum*) and wilt (*Fusarium oxysporum*) were found prevalent in the municipalities of Tubao, Agoo, Rosario, Aringay, Cava, Santo Tomas, Naguilian, and Bauang, when a survey was made in those municipalities in March.

Vegetable diseases.—The black rot of cabbage (*Pseudomonas campestris*) was found prevalent in the Hacienda Concepcion, Camp Stotsenberg, Pampanga. Watermelons were found infected with powdery mildew (*Erysiphe* sp.), tomatoes with bacterial wilt, and peppers with brown leaf spots.

Miscellaneous diseases.—The black rot of cacao pods caused by *Phytophthora faberi*, was reported from Bauan, Batangas.

A fungus disease caused by a species of *Colletotrichum* fungus was found infecting papaya fruits in Silang, Cavite, and in Manila.

A species of *Colletotrichum* fungus was found attacking atis. Two other diseases were found; namely, *Erysiphe* sp. attacking the leaves of atis growing in San Juan Heights and *Lasidiopodia theobromae* on atis fruits in Pangasinan.

The mango diseases reported were gumosis in San Juan Heights and anthracnose in Corregidor Island and Laguna Province.

A slight outbreak of a disease caused by a species of *Phytophthora*, occurred among the santol seedlings in the Singalong Experiment Station.

The diseases found attacking lanzones in the municipalities of Lilio and Santa Cruz, Laguna, were the leaf-spot caused by *Marasmius* and *Guignardia* fungi.

The other diseases found during the survey in Santa Cruz, Laguna, were as follows: *Gleosporium* sp. on avocado; *Guignardia arecae* on betelnut; *Cercosporium gossypina* on cotton; *Cercospora maniotis* on cassava; *Helminthosporium inconspicuum* on corn; *Gleosporium molongenae* on eggplant; *Rhizopus artocarpus* on nanka; *Phytophthora faberi* and *Cladosporium phaeoli* on beans; and *Asterinella stuhlmani* on pineapple.

Garden plants in and around Manila were treated for various pests and diseases of minor importance. Some 150 requests

were received and most of them attended to by the technical personnel and to the satisfaction of the complainants.

COLLECTION AND IDENTIFICATION OF PESTS AND DISEASED PLANT SPECIMENS

Collecting, keeping, and recording specimens.—Representative specimens found by inspection work in the provinces and in the City of Manila, as well as those intercepted by plant quarantine inspectors and those received from other employees of the Bureau and outsiders who consulted the Plant Pests Control Division for advice as regards control measures, are properly preserved, labeled and recorded.

A list of the Bureau's insect collection at the Entomology Laboratory at Singalong is being prepared and the corresponding specimens properly identified so as to aid those who desire to use the collection.

Riker mounts of the many major and minor pests of the Philippines, with accounts of their life histories and habits and control measures, are being prepared.

A collection of diseased plant specimens is also being made to go with the mycological specimens in the herbarium of the Bureau of Science, which will serve as a valuable nucleus for a working pathological herbarium and will be further enlarged as the pathological work of the Bureau of Agriculture progresses.

Specimens submitted by plant quarantine inspectors.—The identifications made of insect pests and plant diseases specimens submitted by the plant quarantine inspector are given under the caption "Pathological and Entomological Interceptions."

SURVEY AND ERADICATION OF COCONUT BUD-ROT AND OTHER DISEASES AND PESTS OF COCONUT

As no Insular coconut bud-rot inspectors could be appointed owing to lack of funds for salaries of temporary and emergency employees, authority was secured by the Bureau of Agriculture from the Secretary of Agriculture and Natural Resources on December 26, 1924, to allot to certain provinces out of the "Contributions and Gratuities Funds" of the Plant Pests Control Division the amount indicated elsewhere in this report.

In addition to the work of eradicating coconut bud-rot, inspection was also made of the groves for the presence of palm weevils, coconut beetles and other pests, and of diseases.

TABLE 15.—Showing the number of trees inspected and the number of coconut bud-rot cases found and destroyed during the year 1925

Province and municipality	Number of trees inspected			Number of bud-rot cases	
	Bearing	Not bearing	Total	Found	Destroyed
LAGUNA					
Alamogosa.....	496,625	124,476	621,101	422	422
Lilo.....	276,263	52,757	329,020	1,120	1,120
Magdalena.....	380,694	74,454	455,148	96	96
Mayaguez.....	363,631	168,806	532,437	254	254
San Pablo.....	1,073,570	209,353	1,282,923	410	383
Nagpartian.....	66,736	15,075	81,811	716	465
Santa Cruz.....	213,138	55,718	268,856	75	75
Total.....	2,768,064	730,375	3,498,439	3,163	2,814
ZAMBOANGA					
Zamboanga.....	648,323	587,777	1,236,100	654	654
Isabel de Basilan.....	62,898	76,798	139,696	23	23
Total.....	900,121	664,575	1,564,696	677	677
CAVITE					
Alfonso.....	67,399	52,760	120,159	606	668
Amado.....	26,696	43,298	69,994	156	156
Baylan.....	7,516	11,255	18,771	37	37
Indang.....	247,701	268,203	515,904	3,660	3,660
Magallanes.....	4,166	12,186	16,352	.....	.....
Mendez-Núñez.....	17,164	22,392	39,556	376	376
Silang.....	121,499	146,846	268,345	820	820
Total.....	491,499	554,938	1,046,437	5,406	5,406
TAYBASAN					
Candalaria.....	112,944	41,791	154,735	260	260
Dolores.....	23,760	26,677	50,437	166	166
Guinayuan.....	11,686	4,078	15,764	8	8
Lagunianoc.....	150,430	90,689	241,119	684	684
Luzon.....	14,760	2,050	16,810	3	3
Maculan.....	142,297	89,731	232,028	136	136
Pagbilao.....	75,581	66,820	142,401	86	86
Pitogo.....	276,817	122,679	399,496	767	767
Ticao.....	68,811	26,336	95,147	184	184
Total.....	806,605	409,178	1,215,783	3,448	3,448
BATANGAS					
Lipa.....	39,385	42,114	81,500	73	73
Grand total.....	5,113,116	2,401,178	7,514,294	11,693	11,445

TABLE XXIII.—Showing survey of other coconut pests and diseases during the year 1925

Province	Other pests and diseases		
	Red beetle	Black beetle	Stem bleeding
Laguna.....	24,600	27,001	360
Zamboanga.....	3,247	1,680	6,601
Cavite.....	1,269	9,456	763
Taybasan.....	.....	.....	55
Batangas.....	.....	.....	.....
Total.....	29,256	32,746	8,338

SURVEY AND ERADICATION OF ABACA DISEASES AND PESTS

This work is a continuation of that started last year.

Since the two Los Baños graduates who were assigned to this work transferred to other Bureaus of the Government, the survey work has been left to the two junior plant inspectors, one of whom is still in Albay and the other in Davao, which makes progress slow.

Inasmuch as the bunchy-top disease was found present in two municipalities of Tayabas Province—Sampaloc and Mauban—Administrative Order No. 45 was amended to include these two municipalities.

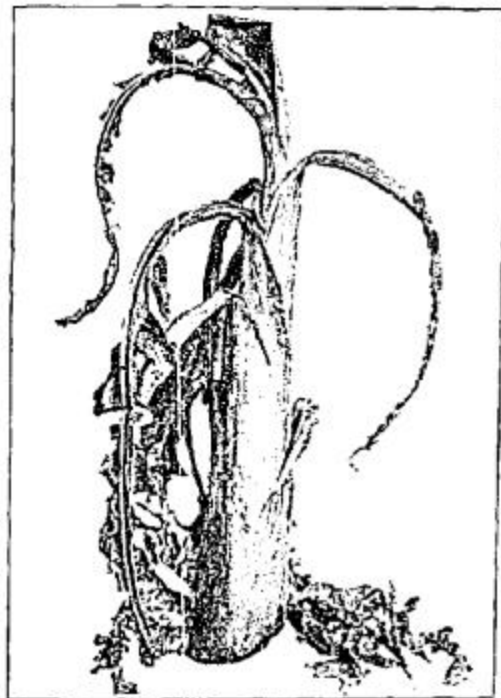
Cavite Province.—Reinspection of the two municipalities of Mendez-Núñez and Indang was done during the year. The same abaca diseases (heart-rot and bunchy-top) have done an immense amount of damage in all the plantations of these two municipalities, and in fact in the Province of Cavite as a whole. Rice, corn, coconuts, and vegetables are being grown instead.

Albay Province.—The survey in this province was started sometime in May, 1925, and about 100 barrios of the municipalities of Tobacco, Bagacay, Libog, Malilitot, Malinas, Tiwi, and Daraga were surveyed during the year. The plantations are old and some are interplanted with coconuts. The varieties under cultivation are the black, red, white, Samina, Bagacayan, canton, and pacol. In some plantations there is more canton than abaca of the commercial varieties. Different kinds are planted together, as would be expected, in the plantations. Most of the plantations are hilly and the soil is sandy loam. In some places the growth of abaca is very poor due to the poor condition of the soil. The plantations of the municipalities surveyed were found free from heart-rot and bunchy-top. A few cases of attack by abaca weevils were noted in Tobacco. The varieties susceptible are canton and pacol and the planters were advised to eliminate these and cultivate only the commercially known varieties, such as the red, black and white. They were also instructed in modern methods of cultivation to produce vigorous, healthy plants and as to better methods of stripping in order to produce finer fibers that would command higher prices.

Davao Province.—The survey and eradication work was continued during the year. Fourteen municipalities, comprising a total of 74 barrios, were surveyed. The municipalities infested with abaca heart-rot were Davao, Santa Cruz, Malita, Mati, Lupon, Tagum, and Cambanogay, while two of the sitios of Ta-



(a) Abaca plant infected with Mosaic disease



(b) Top portion of a banana plant affected by bunchy-top

gum; namely, Bud-bud and Magapo, were affected with bunchy-top disease. The varieties found most susceptible to heart-rot were Buñgalon, Putian, Libuton and Tonongon. The Maguin-danao variety was the only found susceptible to bunchy-top. The abaca root weevil was found in almost all the municipalities inspected, especially in the plantations where the heart-rot is present. The usual control measures were recommended to the planters.

TABLE XXIV.—*Showing the provinces so far surveyed and affected by one or both diseases*

Province	Bunchy-top	Heart-rot
Albay.....	Not present.	Not present.
Batangas.....	Present.	Do.
Camarines Norte.....	do.	Do.
Camarines Sur.....	do.	Do.
Cavite.....	do.	Present.
Davao.....	do.	Do.
Laguna.....	do.	Do.
Leyte.....	do.	Do.
Samar.....	Not present.	Do.
Tayabas.....	Present.	Not present.
Zamboanga.....	Not present.	Present.

From Table XXIV, it will be seen that of all the provinces (so far surveyed) growing abaca to a more or less extent, four provinces, viz.: (1) Cavite, (2) Davao, (3) Laguna, and (4) Leyte were found affected by both the bunchy-top and the heart-rot diseases; four provinces, (1) Batangas, (2) Camarines Norte, (3) Camarines Sur, and (4) Tayabas infested with bunchy-top alone; and two provinces (1) Samar and (2) Zamboanga infected with heart-rot alone. Albay is reported free from either trouble.

SURVEY AND ERADICATION OF THE PARASITE LORANTHUS AND BARK ROT DISEASE OF CITRUS

Loranthus, a flowering plant parasite, was reported present on many citrus and other plants in Batangas Province, where some mandarin orchards are very badly if not fatally infested. It is also found in Nueva Ecija, Cavite, and probably in other provinces where citrus trees are growing. The seeds of the parasite are carried by the wind and germinate on the branches and twigs of trees, the roots penetrating through the bark to the cambium layer, deriving all their sustenance from the host.

It also preys on other trees—the lumbang, mango, chico and lanzones, for example. It is easily recognized among the foliage and the most practical remedy is to examine each tree in the

orchard and prune off and burn the branches attacked by this parasite.

Arrangements were made, especially with the provincial officials of Batangas to coöperate with field men of this Bureau assigned to the work of eradicating the parasite completely, as if this is not done, it will, in time, kill all the citrus trees in Batangas and wherever else it may be found. The Province of Batangas adopted, through the recommendation of the Bureau of Agriculture, a sort of a provincial ordinance compelling the growers to eradicate this pest.

TABLE XXV.—Showing the number of municipalities surveyed and indicating the prevalence of *Loranthus* and bark-rot

Municipality and barrio	Number of owners	Total number of trees inspected	Number of trees affected		Number of dead trees	Number of trees treated
			Loranthus	Bark-rot		
Batangas.....	196	5,957	122	552	23	58
Santo Tomas.....	166	4,717	397	68	403	17
Malvar.....	392	11,552	2,470	2,030	380	1,187
Tausan.....	702	30,230	6,593	4,889	1,033	3,636
Total.....	1,456	52,456	9,382	7,529	1,839	4,898

REMARKS.—The column "Number of Trees Treated" includes trees affected with both *Loranthus* and bark rot. The number of trees treated is less than the number affected because the rest had not as yet been reported as treated at the time of writing this report.

ENTOMOLOGICAL AND PHYTOPATHOLOGICAL RESEARCH WORK

The principal researches on various insect pests and diseases reported last year have been continued, although the studies were necessarily interrupted by the large amount of routine and field inspection work that has been done.

ENTOMOLOGICAL

Insect pests.—Studies were continued on the cabbage caterpillar (*Crocidolomia binotalis*), and the citrus bark borer (*Agrius occipitalis*), and further observations made of grubs of the "toy beetle," *Leucopholis irrorata*. It is now known that the life cycle of the insect is about a year, and that there is only one generation.

Important data were obtained during the year on the common noctuid worms (*Prodenia litura* and *Spodoptera mauritia*) from field and laboratory observations, and further studies have been started on tobacco insects.

A special study is also being made of the mango twig borer (*Euclea capito*), an insect much complained about by mango tree owners, since it kills many twigs. Fragmentary yet valuable life history records of other insect pests were made.

Calcium cyanide as an insecticide.—The following results have been secured with cyanogas (calcium cyanide).

One-half to four teaspoonfuls of the granular calcium cyanide introduced into the nests of the common red ants (*Solenopsis geminata*) was found sufficient to kill the insects in all stages. The calcium cyanide dust also readily kills all the ants crawling on the surface of the soil. Undoubtedly it can be used for dusting seed-beds, tobacco seed-beds, for example, to kill the insects that steal the seeds.

It was also tried with success in the proportion of one pound to every 1,000 cubic feet against termites in one of the store-rooms of the Bureau of Agriculture. All rats and mice were also killed.

For white grubs (*Leucopholis irrorata*) it was found that 2 to 6 grams of the granular form of calcium cyanide injected about 15 centimeters from the base of each mango seedling about 10 centimeters into the soil was enough to kill the grubs without any apparent injury to the seedlings.

Beekeeping.—As stated in our annual report for 1924, there remained only one colony of Italian bees in December of that year. During April, May, and June, 1925, when the colony had considerably increased in size, three small colonies were raised from it. There are therefore at present four colonies at the Singalong Propagation Station, each with a young queen. No apparent growth of these colonies was noticed during the period from August to December due, in large part, to the typhoons and heavy rains and the scarcity of nectar-producing flowers.

PATHOLOGICAL

Experimental shed (Greenhouse).—During the year, a small bamboo shed, 9 by 4½ by 7½ meters, was built behind the new Chemistry Laboratory on the grounds of the Bureau of Science in which to keep plants for inoculation experiments.

Abaca diseases.—Field and laboratory experiments on heart-rot and root-rot (or bunchy-top) diseases are still in progress.

Histological preparations were made from specimens of the Lawisid variety of abaca obtained from Almagro, Samar, affected by a disease supposed to be mosaic. This disease has never been reported on abaca in this country. Infection experiments have already been started and cross inoculations will soon be started.

Aside from the work on abaca diseases, biological research has been conducted on the deterioration of Manila hemp. All

phases of the experiments have already been completed and the necessary plates and figures made. The manuscript has already been submitted for publication in the Philippine Journal of Science.

Coconut diseases.—Field observations and laboratory experiments were conducted during the latter part of the year in an effort to discover the causal organism of a serious disease of coconut fruits known as nut-fall and find a remedy. Artificial inoculations of the different stages of coconut fruits with the fungi *Thielaviopsis*, *Phytophthora*, and *Cleosporium*, which were obtained from isolations made from diseased nuts, showed that *Thielaviopsis* and *Phytophthora* are both pathogenic, while *Cleosporium* proves to be only a mere saprophyte on diseased fruits. Repeated inoculation experiments with these fungi using two varieties of coconut fruits; namely, the purple and green varieties, apparently gave practically the same results, except that the purple variety showed a certain degree of resistance to the attacks of fungi.

In an effort to determine the identity of the fungus *Thielaviopsis paradoxe* causing the stem-bleeding of coconuts with that of the fungus *Thielaviopsis* obtained from diseased fruit, cross inoculations were made using stem-bleeding *Thielaviopsis* on different stages of coconut fruits. Apparently this gave positive results. Thus far the stem-bleeding fungus and nut-fall fungus seem identical, however, a more extensive study is necessary to prove that fact.

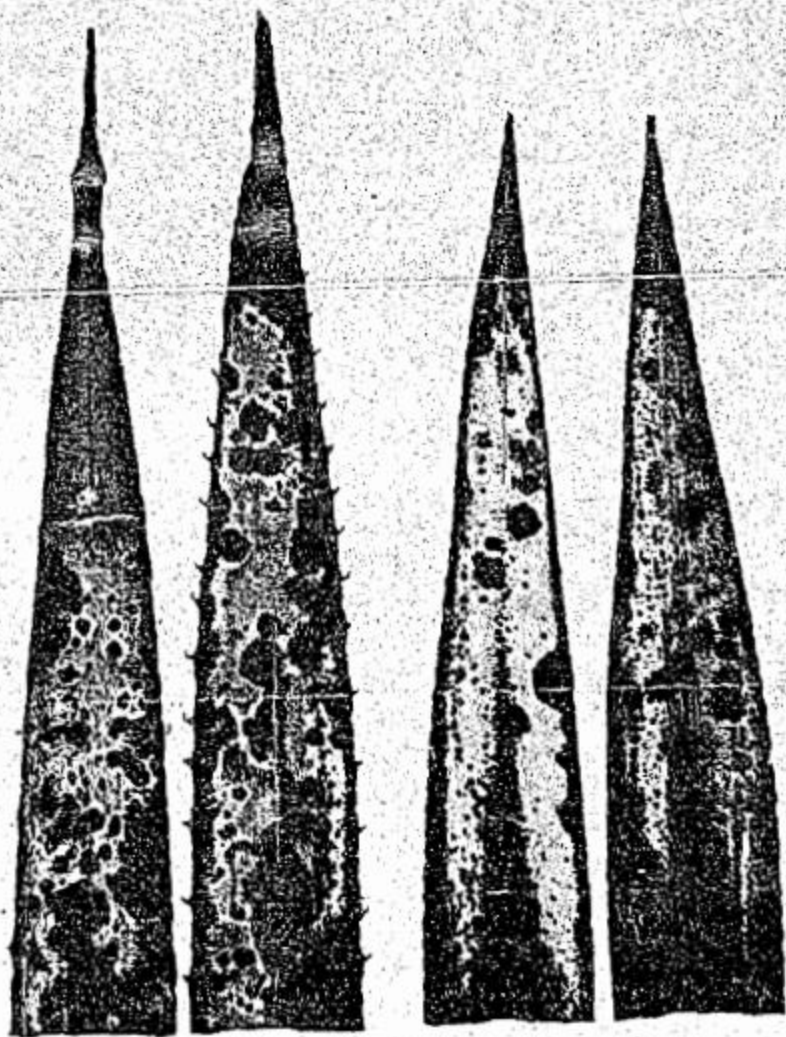
Fifteen coconut plants about one year old affected by coconut blight have been studied and isolations made from infected leaves. *Pycnidia* of the fungus *Phyllosticta* were found developing on the diseased spot. Lime-sulphur solution (1 part to 39 parts water) was administered twice at an interval of one month. This proved efficacious in controlling the disease.

Tobacco wilt disease.—Preliminary isolation and infection experiments were included in the report last year. Repeated inoculations made during the summer of 1925 showed better results. Of four kinds of tobacco, locally known as Pampano, Viacaya, Piniña, and Batoc, the latter two are more susceptible to the disease. In all isolation experiments a species of *Fusarium* is always obtained.

Further observations indicated that infection with the organism can be produced easily during hot weather when there is high temperature in the soil and heavy infection. Water seems to enable some of the plants to overcome the effect of the dis-



Coconuts affected by the nut-fall disease (*Thielaviopsis* sp.)



Top portions of Maquey leaves (left) and S'sal leaves (right) showing infection with yellow-spot disease

ease. This has been frequently observed in the course of infection experiments. Wilting plants may become turgid and upright a few hours after watering. More infection experiments are to be tried in the summer of 1926 to verify many important points and a variety test for disease resistance will also be conducted.

Miscellaneous diseases.—Badly diseased specimens of papaya fruits (Plate IX, Fig. 1) were collected and photographed and isolations from them gave a species of *Colletotrichum* in the majority of cases. Preliminary infection experiments were made in the laboratory and all gave positive results. As to whether the organism causing this disease of papaya fruits is the same as that which causes anthracnose of other fruits such as the mango, avocado, etc., remains to be proved.

The atis (*Anona squamosa*) suffering from anthracnose disease (Plate IX, Fig. 2) has also been the subject of research. Isolation made from diseased material produced a species of *Colletotrichum*. To discover whether this is the conidial stage of the fungus (*Glomerella cingulata*) causing anthracnose of mango, avocado, etc., will take further study.

A serious foot-rot disease (Plate IX, Fig. 3), killing many ornamental plants, especially gumamela (*Hibiscus achizopetalus*), morado (*Graptophyllum pictum*), *Achalypa tricolor* and others, was studied in the laboratory and a fungus belonging to the genus *Nectria* was found constantly associated with the disease. It is probable that this is the cause of the trouble, but inoculation experiments have to be conducted in order to verify this.

A fungus disease occurred among the santol seedlings at the Singalong Experiment Station of the Bureau of Agriculture about the middle of the wet season. Isolation and inoculation experiments showed that the fungus responsible for this trouble was a species of *Phytophthora*. It is not unlikely that seedlings of other kinds of plant may be attacked by the disease, since Para rubber seedlings growing in the neighboring seed-beds showed similar symptoms. Further investigations relating to the disease are in progress and a more detailed account of the results of isolation and infection and remedial experiments will be published later.

An investigation has been started concerning two new diseases affecting Agave plants. One of these is characterized by yellow spots and the other by a blight. The former occurs on both maguey (*Agave cantala*) and Sisal (*Agave sisalana*), while

the latter affects the henequen hemp (*Agave fourcroydes*). Various fungi and bacteria have been isolated from specimens of the yellow-spot disease, but none of them has been found so constantly associated with the diseased material as to induce the belief that it is the pathogene responsible for the trouble. Preliminary inoculations with these organisms have given negative results. From the diseased specimens of henequen hemp a fungus belonging to the genus *Helminthosporium* has been isolated and inoculation tests will be made to find its relation to the disease.

ANIMAL HUSBANDRY DIVISION

Conditions were in general favorable for the work of this division, there having been no big typhoons or severe outbreak of disease.

The year showed a marked increase in the already big demand for the pure bred and selected grade animals—horses, cattle, goats, pigs, and poultry and their eggs. There is always a waiting list for every kind of animal raised under the supervision of this division and, needless to say, more pure bred animals should be imported not only to meet this demand but to renew the blood and prevent inbreeding.

A contributing cause was doubtless the visits made to piggeries and poultry yards by the technical personnel, who gave timely advice as to breeding, proper care, feeding management and sanitation and demonstrated the caponization of cockerels and the castration of pigs for owners.

IMPORTATIONS AND PURCHASES

Animals imported this year for the Bureau were:

2 Arabian stallions	P2,413.29
1 Welsh pony	1,372.56
1 Ayrshire bull	1,323.38
2 Nubian goats	997.91
1 Shropshire ram	322.64
3 Pure-bred pigs	672.00
18 Pure-bred chickens	528.00
12 Squab Homer pigeons	75.00
Total	7,704.78

Aside from these there were purchased during the year, 10 horses valued at P2,835 for breeding purposes; 339 head of cattle worth P20,670.80; and 15 head of carabao for P1,215 for the production of virus; and 4 horses costing P984 for work purposes. For the Philippine Health Service the Bureau bought

10 carabaos valued at ₱1,430 and 6 rabbits for ₱30; for the Province of Bukidnon, it imported an Arabian stallion costing ₱1,206.65; and also one of the same value for the Province of Zamboanga; while a horse worth ₱150 was purchased under Act No. 2758.

PUBLIC BREEDING

Practically every effort made this year to extend the public breeding work to more remote towns has been unavailing due largely to the prevailing shortage of funds. The only new public breeding work done was in the non-Christian regions. The main difficulty in the already established stations is the distance the owners of live stock would have to travel to bring their female animals to these centers.

Number of sires served during the year

Kind	Number of sires	Number of services	Number of offspring	Increased value
Stallions.....	14	499	282	₱14,100.00
Bulls.....	24	800	947	17,350.00
Donors.....	36	685	1,873	18,730.00
Rams.....	1	.....	19	38.00
Bucks.....	6	87	119	238.00
Totals.....	81	1,981	2,640	50,456.00

Estimated increased values based on market prices:

Horses, each	₱50.00
Cattle, each	50.00
Pigs, each	10.00
Sheep, each	2.00
Goats, each	2.00

This shows a market increase in the number of foals and kids over the previous year, though a decrease in pigs, lambs, and calves.

The Santa Barbara Station, Indang Farm School, the Bukidnon, Central Luzon, and Pampanga Agricultural Schools, and the College of Agriculture, realized a fair income from the sale of the offspring of the original stocks besides supplying the students' mess with meat and eggs. The income of these stations as well as whatever is raised or produced goes to the institution maintaining the animals. Standing of coöperative stations:

Number of coöperative stations at beginning of year..	20
Number of coöperative stations at closed.....	11
Number of coöperative stations at existing.....	9

The division closed its Poultry Swine Station in La Paz, Iloilo, because of the prevalence of contagious parasitic diseases on the premises.

The total income of this division from the sales of live stock and other products of its stations amounted to \$22,287.33.

ALABANG STOCK FARM

The work of the Alabang Stock Farm, which consists of the raising of pure bred and selected animals of various breeds for sale to the public and for distribution to public breeding stations; the acclimatization of imported live stock; the conducting of experiments on feeds, feeding and breeding, and the manufacture of mixed feeds for its animals and other stations, was generally satisfactory barring the death among the sheep and goat herds towards the end of the rainy season, due to a virulent attack of stomach worms. This was, however, controlled by dosing the animals with copper sulphate solutions in much the same manner as it is done in South Africa.

The importation of an Ayrshire bull and a Welsh pony stallion from Australia and of two Arabian stallions from India made the horse project and cattle project once more important in this farm. The end of the year finds all mares and cows pregnant or with young.

A marked increase has been recorded in the number of visitors to this farm and educational excursions to it have become an established custom among the high institutions of learning in Manila.

The records as to the following very interesting breeding, crossbreeding, feeding and other experiments are to be published in detail in the Philippine Agricultural Review.

1. Comparison of molasses, cassava and corn with tiqui-tiqui and copra meal as basal rations for the fattening of pigs.

2. Comparison of the egg production between laying hens on free range and those confined.

3. Comparison of the egg production between laying hens fed a mash feed with whole grains and those fed only a mash feed.

4. Commercial hog and chicken raising.

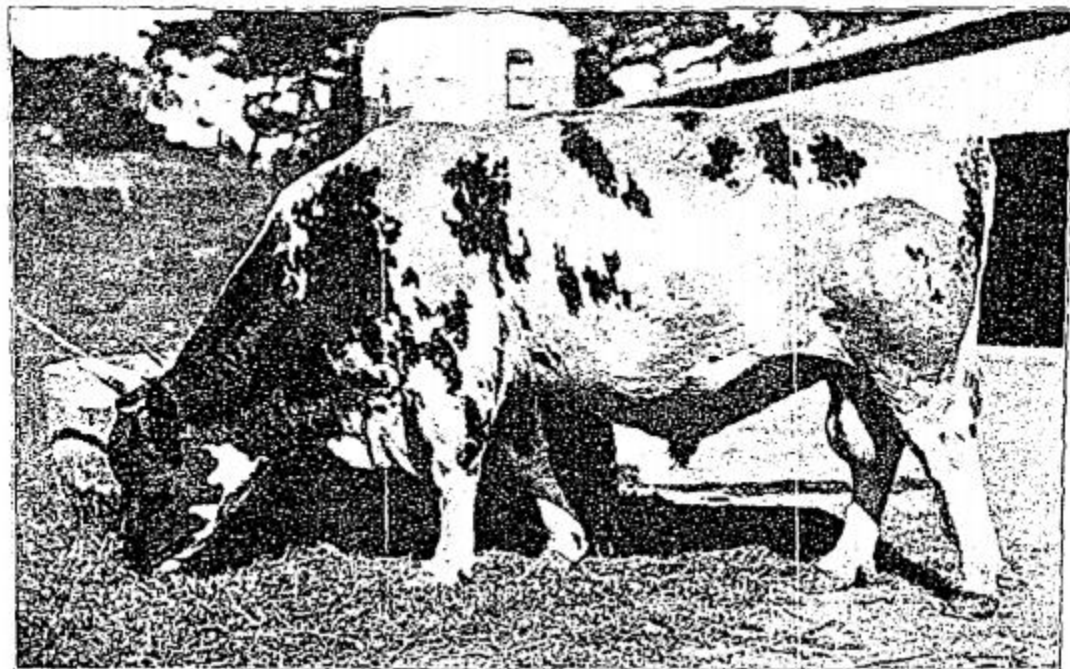
5. Determination of moisture lost during incubation of chicken eggs.

6. Comparative study of the growth between caponized and uncaponized cockerels.

7. Comparison of the egg production between Indian Runner and native ducks (second set of experiments).

8. Trial feeding of molasses to young cows.

9. Artificial brooding of chicks during different seasons of the year.



"Prelate of the Valley." Property No. 1901. An Ayrshire bull from Australia at present used for breeding work at the Alabang Stock Farm

10. Comparison of baby chicks raised on places known as fowl sick and on uninfected places.

11. The crossbreeding of a jackass to grade and native mares.

12. The determination of the amount of fleece produced yearly by the different breeds of sheep at the farms.

13. The crossbreeding of an Ayshire bull to Indian Nellore and Fuga cows (still going on).

14. Crossbreeding of chickens—a set of different experiments (still going on).

From sales of animals alone this station is credited ₱12,140.74, for those transferred to other stations ₱9,377.26.

LA CARLOTA EXPERIMENT STATION

Livestock raising in this station was successful in general, the pasturage being good and the weather conditions favorable due to the even distribution of rainfall throughout the year.

Cattle-raising is the main work of this station. The herd at the present time consists of 130 pure Indian and 273 grade cattle including 54 head of carabaos. Sheep and goats, poultry and pigs are also raised on a small scale to meet the public demand.

Most of the feed is raised at the station with the exception of tiqui-tiqui, which comes from Alabang Stock Farm.

The station sold stock this year valued ₱6,654.08.

Various experiments were conducted this year on this farm. These were:

(1) Castration of cattle and carabaos at different ages to determine the best age at which to castrate—only Indian grade bulls undesirable for breeding purposes were used. Age castrated, at 6 months, 1 head; at 1 year, 7 head; at 1½ years, 7 head; at 2 years, 5 head; at 2½ years, 8 head; at 3 years, 3 head. Observations made this year are that young castrated animals fatten more easily than old ones and the older the animal the more pronounced and apparent is the neck development.

(2) Milk testing of Indian and grade cattle and carabao cows.

(3) Crossing White Leghorn with native hens.

One interesting result so far has been that all the white chicks turned out to be males and the rest were barred to some extent, whether male or female. The details will be published in full in the *Philippine Agricultural Review* as soon as the experiments are completed.

CEBU BREEDING STATION

The importance of this station grows from year to year with the increase in the number of livestock it raises and the larger number of persons who become acquainted with its work.

Hog cholera broke out among the pigs about the middle part of the year; but the timely application of anti-hog-cholera serum quickly controlled the outbreak.

The public breeding station is credited with 111 services and 277 offsprings for the year and its income from sales of its stock was ₱1,052.69.

BATANGAS BREEDING STATION

The upgrading of horses in this station was more extensive this year than in 1924. There are seven public breeding stations, and they rendered 335 services on 258 mares. The number of foals reported for the year was 98.

The upgrading of cattle is reported by this station as giving good results. The three Indian bulls are rendering good services in different herds in Batangas and 55 calves are credited to them.

The breeding boar served 39 sows and has 189 pigs to his credit this year.

The animals are in good condition.

The crossbreeding between the Rhode Island Red and Banaba chickens which was started last year was continued this year and will be reported on in full as soon as the strain becomes established.

The income from sales of pigs, poultry and eggs and the fees collected for the services of the stallions amounted to ₱529.20.

LA PAZ POULTRY-SWINE STATION

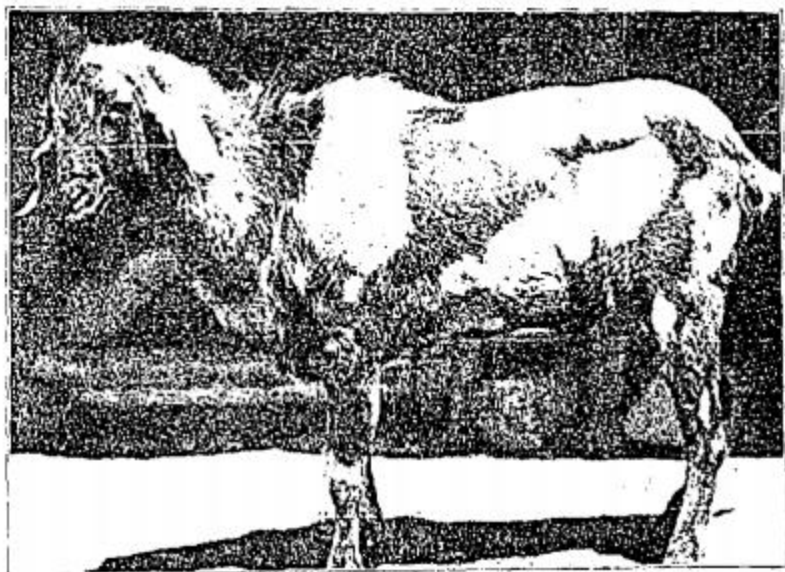
This station was closed in the middle of the year due to the prevalence of animal diseases on its premises. The animals and poultry were sold for ₱869.30—except the Indian bulls, which are now in different herds in the Province of Iloilo.

PANDACAN

Here the animals are kept temporarily when for any reason awaiting transportation. It is also a quarantine place for animals; and stallions and boars are also kept here for public breeding for the benefit of the city people. Rhode Island Red-Cantonese chickens are raised, besides a few goats, pigs and turkeys to keep the laborers busy. These crossbred chickens are under observation also as a check on the cross breeding experiments of the Rhode Island Red-Cantonese done in other stations. Sales from stock amounted to ₱76.



(a) imported Shropshire ram, "Crowley" Property No. 424. From the United States, now at the head of the Bureau's flock at the Alabama Stock Farm



(b) "The Sheik," Property No. 1021. A horned Nubian buck from California, U. S. A., now at the head of a flock of goats at the Alabama Stock Farm

SAN ANTONIO POULTRY-SWINE STATION

Early in the year the animals in this station were transferred to San Narciso, a town north of San Antonio, as the latter town would not provide funds for the rent of the land. The free public breeding is thus now benefiting the San Narciso people. The Indian bull is rendering good service for both towns, being credited with 33 calves, while the boars are credited with 27 services and 141 pigs. The income from sales amounted to ₱206.32.

ORIENTAL NEGROS BREEDING STATION

This station was not successful in producing forage and grain crops due to heavy rains this year. General repairs were made on the animal sheds. The shortage of funds for labor provided by the province hindered the progress of the work in general.

This station keeps a public breeding stallion, bulls, boars, a ram and a billy goat, besides raising pigs and chickens. The stallion was only sent to that station recently. The three Indian bulls are in different herds and are credited with 89 calves for the year; the boar with 22 services and 80 pigs, the ram with 19 lambs and the billy goat 45 kids.

The income from the sales, amounting to ₱52, is credited to the province.

Some feed is purchased locally to supplement the forage and grain crops raised in the station.

LARENA POULTRY-SWINE STATION

This station was established in the Subprovince of Siquijor and is maintained by the subprovincial government. Pigs and chickens are being raised for sale and there is a boar for public breeding.

BAYOMBONG CATTLE BREEDING STATION

Cattle raising and the loaning of Indian bulls to cattle owners for the upgrading of their native stock are the activities of this station. Four Indian bulls were loaned this year. These are credited with 54 calves which is 32 more calves than that reported for 1924. The number of cows going with these bulls was 197 as against 178 head in 1924.

During the year this station received a trio of sheep and one riding horse. The number of cattle at the end of the year is 84, and the increase 7 head after deducting 7 deaths and 7, sold for ₱1,259.

Close observations were begun this year to determine the growth of Indian cattle, appearance of teeth, time calves begin to nibble and other pertinent data as a basis for an article for publications on Indian cattle.

VETERINARY DIVISION

ADMINISTRATION

Importation from foreign ports.—During 1925 there arrived at the port of Manila, 8,128 cattle from Australia; 1,301 cattle and 286 carabaos from Pnom-Penh, French Indo-China; 2 head of cattle from Japan and 1 from the United States; 544 carabaos arrived at Iloilo from Pnom-Penh. This constitutes a decrease of 570 cattle and 1,968 carabaos as compared with the figures for 1924.

Interisland shipments.—There arrived at Manila from inter-island ports 11,660 cattle as compared with 14,686 during the preceding year. Carabaos numbered 2,089, an increase of 196 from 1924.

Inspection for which fees were collected.—A total of 148,258 animals of all kinds were inspected upon arrival at Manila, for which fees amounting to P20,645.05 were charged and collected. Of these animals, 121,524 were swine.

Postmortem inspection in Azcarraga abattoir.—There were 131,390 animals of all kinds inspected of which 130,412 were passed for food and 978 condemned. The number slaughtered includes 118,763 swine.

Postmortem inspection in Pandacan matadero.—Seven hundred and seven (707) animals were inspected and slaughtered at this matadero in 1925, of which 3 were condemned and 704 passed for food.

Postmortem inspections in Sisiman matadero.—At Sisiman 8,846 Australian cattle were slaughtered of which 130 were condemned and 8,716 passed for food.

COMBATING OF ANIMAL DISEASES

Rinderpest.—During the year there were reported 14,143 cases of rinderpest and 10,747 deaths from this disease. This compares favorably with the 19,599 cases and 16,932 deaths in 1924. The provinces infected at one time or another during the year were Bulacan, Cagayan, Capiz, Cavite, Cebu, Ilocos Sur, Iloilo, Isabela, Laguna, La Union, Mountain Province, Nueva Ecija, Nueva Vizcaya, Occidental Negros, Oriental Negros, Pampanga, Pangasinan, Rizal, Tarlac, and Tayabas.



(a) A herd of 300 sheep and 40 goats owned by Mr. Alilano Villozas, Tanyag, Oriental Negros. The old tarapiche camarin is now used for shed for the sheep and goats



(b) Thirteen female grade Indian goats with their kids. Alabama Stock Farm

At the beginning of the year there were 34 municipalities infected in 11 provinces and on December 31, 1925, there were 27 infected towns in 11 provinces. There were 197 outbreaks of rinderpest during the year, counting each time a municipality was taken up as infected or reinfected as a separate outbreak.

Ilocos Sur, La Union, and Mountain Province comprised the new territory invaded by the disease during the year. The first town infected in La Union Province was Rosario, near the boundary of Pangasinan. The disease ran through the whole length of the province, the infection apparently traveling along the hills and finally infecting Tagudin, the southernmost town of Ilocos Sur. These regions had not been infected to any considerable extent since 1912 and the toll taken by the disease was rather heavy by reason of the large number of susceptible animals that have grown up since the great epidemic over ten years ago.

At this writing ¹ Ilocos Sur has been completely freed from the disease, La Union and the Mountain Province are rapidly being cleaned up. In the latter province only Baguio suffered considerable losses.

The infection did not go further north than Tagudin and one or two barrios of the next municipality, Santa Cruz, adjoining Tagudin, because of the rigid quarantine established and the judicious employment of the rinderpest vaccine at Tagudin. These two means in combination are responsible for the highly satisfactory results obtained. The Constabulary soldiers employed in this quarantine numbered about three hundred officers and men. A quarantine cordon was established well beyond the infected territory along the Santa Cruz River. All the townships, barrios, and sitios between this dead line and the Amburayan River from the coast to the hills were guarded by soldiers, so that there was practically a complete immobilization of animals in the whole zone before and some time after the vaccination was done. Some difficulty was experienced with the hill animals as they were in a semi-wild state and not until it was announced that the loose animals in the hills would be shot did the owners and caretakers make determined efforts to bring them in and keep them tied up. However, no actual shooting was done, as the warning sufficed.

The major part of the forces and equipment of the Veterinary Division were employed in this campaign, and it was fortunate that the rinderpest infection elsewhere was on the wane, as that permitted the necessary concentration of personnel and equip-

¹ January, 1926

ment at that point. The campaign at Tagudin lasted from July 29 to December 31, or about five months.

The following table gives the number of rinderpest cases and deaths by three month period during 1925:

TABLE XXVI.—*Rinderpest cases and deaths by quarters*

	New cases	Deaths
First quarter.....	3,231	2,315
Second quarter.....	4,136	3,043
Third quarter.....	5,344	4,395
Fourth quarter.....	1,372	994
Total.....	14,148	10,747

Rinderpest vaccine.—This product was used extensively in the Provinces of Pangasinan, Ilocos Sur, and others, as can be verified elsewhere in this report. It has given satisfactory results, but where the infection is severe, it was found that as much as five injections were necessary to confer a strong enough immunity to ward off infection.

Immunization.—As in previous years no money was appropriated to reopen the stations for simultaneous immunization against rinderpest. However, carabaos and cattle were immunized by this method at the Pandacan Quarantine Station at cost to owners.

Anthrax.—No epidemic of this disease made its appearance during the year, but there were minor sporadic outbreaks in the Provinces of Bataan, Bulacan, Nueva Ecija, Pampanga, Pangasinan, and Tarlac which were promptly dealt with by vaccination. A total of 591 cases and 558 deaths were registered.

Following is the number of animals vaccinated against anthrax in the above-mentioned provinces:

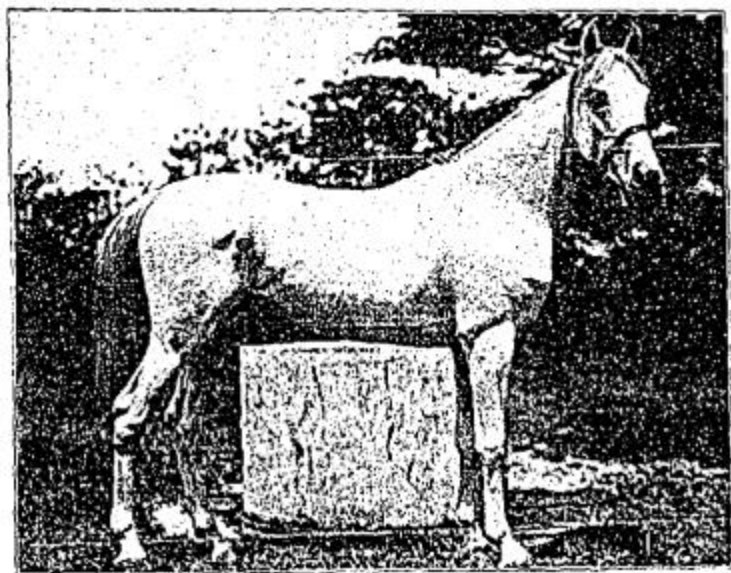
Bataan	126
Bulacan	3,183
Nueva Ecija	13,890
Pampanga	1,627
Pangasinan	35,254
Tarlac	8,756
Total	62,842

Septicemia hemorrhagica.—Sporadic cases were reported in the Provinces of Albay, Bohol, Camarines Norte, Camarines Sur, Cebu, Mountain Province, and Sorsogon.

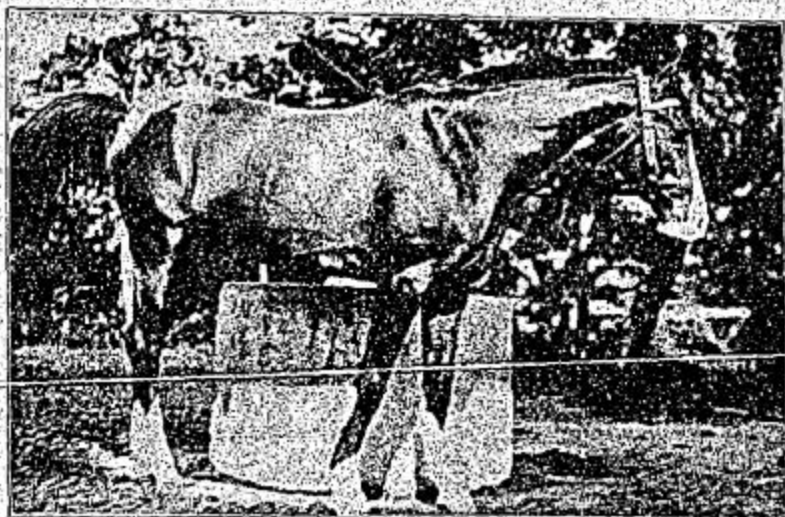
Contagious bovine pleuro-pneumonia.—As previously experienced a few chronic cases were discovered now and then in



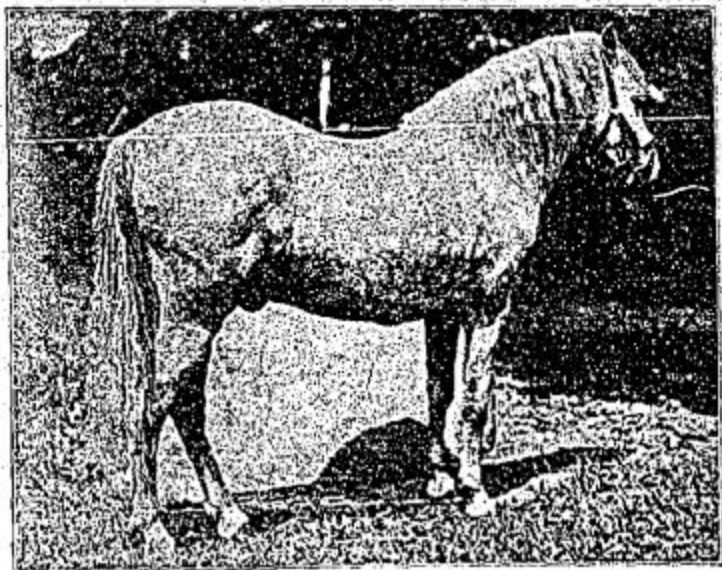
(a) The interior of the brooder house at the Alabang Stock Farm, where chicks are kept after they are taken from the incubators



(b) "Shahra." Property No. 723. An Arabian stallion from India which is now at the Batangas Breeding Station for public breeding service



(a) "Khubber Kinj," Property No. 724. An Arabian stallion from India, now at the Alabang Stock Farm for public breeding work.



(b) "Milton's Greyhound III." Property No. 725. A Welsh pony stallion from Australia, at present used at the Alabang Stock Farm for breeding work.

the various shipments of Australian cattle slaughtered in Sisiman slaughterhouse.

Surra.—Small outbreaks were reported in Camarines Sur, Cagayan, Mountain Province, Sorsogon, and Mindoro during the year. All infected animals were slaughtered.

Glanders.—None reported.

Contagious abortion.—None reported.

Foot-and-mouth disease.—Two outbreaks were reported during the year. One in Cotabato and another in Bukidnon. Relatively few deaths occurred in these, mostly among sucking animals.

VETERINARY RESEARCH LABORATORY

The activities in this Laboratory consisted mainly of diagnostic work, the manufacture of rinderpest vaccine and antirinderpest serum, the immunization of work animals against rinderpest by simultaneous method, and investigation to find the best method of manufacturing rinderpest vaccine. The vacancy created by the resignation of Dr. Wm. H. Boynton, pathologist, is still open. The following summary for the year gives the activities of the Laboratory.

Summary for the year 1925

I

(a) Number of animals used for vaccine:

281 Native cattle	P15,308.35
2 Native carabaos	150.00
2 Private cattle	120.00
<hr/> 285 Total	<hr/> 15,578.35

(b) Number of animals used for testing vaccine:

63 Native cattle	P3,476.65
11 Native carabaos	871.00
<hr/> 74 Total	<hr/> 4,347.65

(c) Disposition made of animals used for testing vaccine:

36 Cattle bled to death for serum.....	P1,959.35
5 Cattle killed for vaccine.....	279.30
11 Cattle died	624.35
3 Cattle sold	169.65
8 Cattle still alive.....	444.00
5 Carabaos died	376.00
6 Carabaos still alive.....	495.00
<hr/> 74	<hr/> 4,347.65

Summary for the year 1925—Continued

(d) Animals used in making antirinderpest serum:

57 Native cattle..... P3,635.65

II

Amount of rinderpest vaccine made.....c. c.... 1,445,280

III

TABLE XXVII.—Number of animals vaccinated by provinces

Province	Number of animals vaccinated					Total
	First injection	Second injection	Third injection	Fourth injection	Fifth and sixth injections	
Batanga.....	89	30	23			142
Bulacan.....	2,338	2,196	1,884			6,318
Cavite.....	10	10				20
Ilocos Sur.....	9,627	9,329	9,170	4,716	8,624	41,286
La Union.....	10,238	10,213	10,030			30,481
Manila.....	23	8	7			38
Mountain Province.....	98	94	92	80		374
Pampanga.....	6,316	6,503	5,872			18,791
Pangasinan.....	35,242	34,405	33,767	63		103,477
Rizal.....	28	26	2			56
Tarlac.....	2,846	3,076	3,551	323	182	9,938
Total.....	66,654	65,890	64,604	5,197	8,656	210,901

TABLE XXVIII.—Number of animals vaccinated by months

Months	Number of animals vaccinated					Total
	First injection	Second injection	Third injection	Fourth injection	Fifth and sixth injections	
1925						
January.....	2,779	2,079	2,175			7,033
February.....	3,888	1,591	1,045			6,524
March.....	8,571	11,706	11,877	13		32,167
April.....	4,389	3,912	2,802			11,103
May.....	13,179	10,984	9,098	63		33,324
June.....	6,378	6,546	8,506			21,430
July.....	10,224	11,067	8,283			29,574
August.....	2,880	8,602	4,774			11,816
September.....	5,331	3,980	4,864	167	92	14,444
October.....	5,700	6,342	5,331	1,457	746	19,576
November.....	2,251	2,856	4,505	2,467	4,950	17,029
December.....	1,084	1,155	1,244	1,039	2,869	7,392
Total.....	66,654	65,890	64,604	5,197	8,656	210,901

IV

TABLE XXIX.—Forage used during the year

Months	Green feed (V. R. L.)	Green feed (P. Q. S.)	Copra meal	Mixed feed	Rice straw
1925					
January.....	Kilos 14,103	Kilos 8,073	Kilos 420	Kilos 590	Kilos 5,625
February.....	19,814	7,099	987	789	7,828
March.....	20,369	9,811	496	412	11,741
April.....	16,074	14,463	482	718	3,027
May.....	22,725	15,695	665	1,003	3,600
June.....	20,130	31,490	328	1,046	5,816
July.....	34,147	14,305	722	703	7,561
August.....	22,072	12,550	689	744	2,872
September.....	11,680	10,885	733	761	6,184
October.....	11,370	16,399	485	479	4,409
November.....	12,630	13,723	776	765	7,168
December.....	13,415	10,069	794	885	5,339
Total.....	227,629	168,362	7,657	8,889	69,262

TABLE XXX.—Value of feed used during the year

	Kilos	
Green feed (grown at V. R. L.).....	227,529	P6,825.87
Green feed (grown at P. Q. S.).....	168,362	5,050.86
Copra meal.....	7,577	408.35
Mixed feed.....	8,889	888.90
Rice straw.....	69,202	1,175.91
Total.....		<u>14,349.89</u>

Of this amount 395,891 kilos of green valued at P11,876.73 was grown at Pandacan Quarantine Station and Veterinary Research Laboratory.

V

Serum manufactured and used:

From native cattle—

Manufactured.....cc.....	193,000
Sent out.....cc.....	71,000
Used.....cc.....	107,000
Balance on hand.....cc.....	<u>15,600</u>

VI

Number of animals tested (immunized at Prom Pehn):

Indo-Chinese cattle.....	760
Indo-Chinese carabao.....	<u>285</u>

VII

Number of animals immunized:

Indo-Chinese cattle.....	2
Native cattle.....	54
Native carabao.....	<u>146</u>
Total.....	<u>202</u>

VIII

Number of dogs examined for hydrophobia:

Positive.....	22
Negative.....	11
Doubtful.....	10
Putrefied.....	<u>7</u>
Total.....	<u>50</u>

ILOILO QUARANTINE STATION

This station received 544 carabaos from French Indo-China in 1925. The sheds in the station are in great need of repairs.

SISIMAN MATADERO

During the year 8,128 head of Australian cattle were received at this station for slaughter. The stockyards and slaughterhouse are in great need of repairs and alterations. The installation of a more adequate system of water supply is also needed. In view of the fact that it has not been definitely decided whether or not the importation of beef is to continue indefinitely, all orders for repairs and alterations are held pending.

TABLE XXXI.—*Origin of cattle and carabaos arriving at port and City of Manila during fiscal year from January 1 to December 31 1925*

Port of embarkation	Number arrived		Number slaughtered		Number shipped		Number of deaths	
	Cattle	Carabao	Cattle	Carabao	Cattle	Carabao	Cattle	Carabao
Philippines.....	11,660	2,089	10,885	7	419	1,871	31	59
Panama-Panama.....	1,301	286	1,282	1	295	377		
Australia.....	8,128		8,848		8		47	
United States.....	1				1			
Japan.....	2							
Hongkong.....								
India.....					2			
Total.....	21,092	2,375	21,015	8	725	2,248	78	33

TABLE XXXII.—*Annual report of livestock inspection port and City of Manila from January 1 to December 31, 1925*

Kind of animals	Number arrived	Number slaughtered	Number shipped	Number of deaths
Cattle.....	21,092	21,015	725	78
Carabaos.....	2,375	8	2,248	33
Horses.....	1,456		188	109
Hogs.....	121,524	117,791	310	6
Goats.....	1,213	1,083	8	
Sheep.....	296	64	14	
Others.....	302	1	70	
Total.....	148,258	139,962	3,493	256

TABLE XXXIII.—*Annual report of inspection and collection, port and City of Manila from January 1 to December 31, 1925*

Kind of animals	Number arrived	Rate per head	Fees collected	Philippine ports	Foreign ports
PANDACAN					
Yardage.....			P1,445.65		
Cattle.....	21,092	P0.20	4,218.40	11,660	9,432
Carabaos.....	2,375	.40	950.00	2,089	286
Horses.....	1,456	1.00	1,456.00	1,434	22
Hogs.....	121,524	.10	12,152.40	121,524	
Goats.....	1,213	.20	242.60	1,213	
Sheep.....	296	.20	59.20	296	
Others.....	302	.40	120.80	52	250
Total.....	148,258		20,645.05	138,268	9,990

NOTE.—Thirty-one head of cattle admitted free on arrival, property of the Civil Government. One hundred fifty-four horses and 95 mules admitted free on arrival, property of the United States Army. Two hundred eighty-three mules and horses admitted free on arrival, property of the United States Army.

TABLE XXXIV.—Bureau of Agriculture annual report of inspection in Azcarraga matadero for 1925

Kind of animals	Passed for food	Con-demned	Total
Cattle.....native.....	10,807	6	10,813
Cattle.....Australian.....	2		2
Cattle.....Pnom-Penh.....	657		657
Carabao.....native.....	7		7
Swine.....do.....	117,791	972	118,763
Goats.....do.....	1,083		1,083
Sheep.....do.....	64		64
Deer.....do.....	1		1
Total.....	120,412	978	131,390

PARTS CONDEMNED

Cause of condemnation	Cattle		Swine		Goat parts	Sheep parts
	Carcass	Parts	Carcass	Parts		
Found dead.....	6		6			
Congestion.....		4,624		99,836	1,484	87
Tuberculosis.....	1		29	263		
Inflammation.....		779		8,661	331	16
Flukes.....		1,316				
Ascariids.....		2,466				
Foetus.....		938		2,870	170	4
Cirrhosis.....		4		11,965	121	2
Nematode.....		283		62	922	56
Bruised.....		6				
Broncho-pneumonia.....		10				
Emphysema.....		417				
Abscess.....		1		6		
Anaemia.....		2		1		
Distomatosis.....		1				
Interna.....				31		
Kidney worms.....				1,222		
Emaciation.....				8		
Septicemia.....				60		
Cholera.....				860		
Cysticercus.....						
Total.....	6	11,229	976	124,667	3,028	165

NOTE:

	Kilos
Cattle, native.....	1,314,375
Cattle, Australia.....	233
Cattle, Pnom-Penh.....	85,815
Carabao, native.....	1,194
Total.....	1,211,559
Females.....	3,186
Foetus.....	523

TABLE XXXV.—Bureau of Agriculture annual report of inspection in Pandacan matadero for 1925

Kind of animals	Passed for food	Con-demned	Total
Cattle.....native.....	78		78
Cattle.....Pnom-Penh.....	625	3	628
Carabao.....do.....	1		1
Total.....	704	3	707

PARTS CONDEMNED

Causes of condemnation	Cattle	
	Carcasses	Parts
Tuberculosis.....	3	49
Congestion.....		411
Emphysema.....		8
Diatomatois.....		109
Bruiied.....		17
Inflammation.....		10
Suppurative inflammation.....		12
Pericarditis.....		2
Cystic.....		4
Anemic.....		2
Ulceration.....		1
Flukes.....		1
Total.....	3	607

NOTE:

	Kilos
Cattle, Phnom-Penh.....	105,761
Cattle, native.....	7,486
Carabao, Phnom-Penh.....	298
Total.....	114,445

TABLE XXXVI.—Post-mortem inspection in Sisiman Abattoir during fiscal year from January 1 to December 31, 1925

	Cattle	Total	Weight
Total killed.....	8,846	Kilos 2,092	Grams 193-000

CONDEMNATION

Causes of condemnation	Cattle	
	Carcasses	Parts
Found dead in corral.....	47	
Tuberculosis.....	70	2,785.5
Anthrax.....	7	70
Anthrax contact.....	.5	12
Septicemia.....	5	7
Pericarditis traumatic.....	1	13
Emphysema.....		3,129
Inflammation.....		1,749.14
Congestion.....		4,880.1
Ulceration.....		986.6
Cystic.....		210
Bruiied.....		211
Pleuro pneumonia.....		214.5
Parasitic nodules.....		216.5
Suppurative inflammation.....		66.5
Atrophy.....		43
Cirrhosis.....		33
Abcess.....		111
Fatty degeneration.....		13
Anemic.....		23
Gastritis.....		17.5
Hypereimia.....		15.5
Actinomyces.....		7
Enteritis.....		7
Nephritis.....		6
Foot rot.....		5
Fibrosis.....		3
Purulent inflammation.....		2
Traumatic pleurisy.....		2
Splenitis.....		7
Necrotic myositis.....		1
Traumatic enteritis.....		1
Myositis.....		.5
Total.....	130.5	14,847.—

TABLE XXXVII.—Iloilo live stock report for the fiscal year ending December 31, 1925

Kind of animals	Number arrived		Number removed from city	Number slaughtered
	From foreign ports	From Philippine ports		
Cattle.....		638	259	3,097
Carabaos.....	544	331	1,423	82
Horses.....		242	38	
Hogs.....		266	320	9,186
Goats.....		31	27	28
Sheep.....		57	12	1
Others.....		29	2	
Total.....	544	1,584	2,140	12,344

Kind of animals	Number arrived		Number removed from city	Number slaughtered
	From foreign ports	From Philippine ports		
Cattle.....		2,453	394	5,020
Carabaos.....		145	439	162
Horses.....		82	296	31
Hogs.....		117	1,696	21,857
Goats.....		29	22	5
Sheep.....		20	25	11
Others.....		2	3	
Total.....		3,048	2,874	26,586

TABLE XXXVIII.—Report of meat weights for cattle and carabaos slaughtered in the mataderos during the fiscal year ending December 31, 1925

Name of abattoir	Number killed		Weight in kilos			Amount
	Cattle	Carabao	Philippines	From-Pohn	Australia	
Andarraga.....	10,897	7	1,114,378			1,114,378
Do.....	667		1,184			1,184
Do.....	2			95,623.5		95,623.5
Do.....	78				293	293
Pandacan.....		1	6,486			6,486
Do.....	625			208		208
Do.....	3,846			106,761		106,761
Sisiman.....					1,909,854	1,909,854
Total.....	21,015	8	1,120,864	202,274.6	1,910,147	3,233,365.6
Average weight.....			102.6	156.2	215.8	159.3
			189.1	208		174

NOTE.—The total weight of meat of cattle slaughtered at Sisiman for which inspection fees were collected was 2,052,191 kilos. This includes 182,339 kilos of detached muscles and "menudencias."

RURAL CREDIT DIVISION

The work done by this division this year was largely a continuous hammering at all the associations with a view to getting those which have been more or less mismanaged by unworthy directors back to a proper manner of functioning, and to stirring up those which have been found stagnating, and stimulat-

ing those which have shown progress. This year may be considered as an era of relative reorganization, and at the end of the year there is ground for pride that in spite of the very reduced personnel of this division it has accomplished the seemingly impossible. The work done may be summarized as follows:

Collection of overdue loans.—The collection of overdue loans has always been the most difficult problem confronting rural credit organizations in any country and the same difficulty has been met with here. Aside from the loans unpaid because of the financial stringency that has prevailed in many parts of the Islands for a number of years, it may be said that many rural credit associations got into trouble because of the wrong idea of the many members that by becoming possessors of one or more shares of stock in any rural credit associations they were entitled to ask for loans, no matter whether or not the money obtained was to be invested for any productive purpose so as to assure the repayment of the loans thus obtained or not. In the long run, therefore, many members who had obtained loans from the associations were unable to return the money on the date of maturity, because they had not invested it in the proper way or else they simply refused to return it. In such cases, court action had to be resorted to, mainly to make an example of the unscrupulous borrowers. Still, save in very few cases, the total amount collected last year exceeded the division's expectations.

Declaration of dividends.—In former years no effort was made to induce the association to declare dividends, especially during their early stages, but in the last two years this move has been urged with the result that in many associations there has been an increase in the circulating capital instead of a decrease, because the general practice was that every shareholder who was entitled to receive a dividend on his shares was induced to reinvest said dividend in the purchase of new shares. This created more interest on the part of the members, for they thus learned how much their money has earned and become hopeful that it would earn more.

Bonding of the treasurers.—During the year with the coöperation of all the provincial treasurers and district auditors, all the municipal treasurers who act as ex-officio treasurers of the agricultural credit coöperative association except the municipal

treasurers in some 40 municipalities were bonded in the Fidelity Fund.

Where there was delay it may be attributed to the failure of the board of directors to meet and to authorize their treasurer to apply for the necessary bond.

Rice and Corn Fund.—The collection of the loans obtained by the rural credit associations from the Rice and Corn Fund was also one of the activities which has been a great burden to this division, because many of the loans granted under the provisions of Act No. 2818 matured June 30, 1925, and at this time of the year when the preparations for the cultivation of rice lands are going on, many associations were unable to repay their loans, so they had to apply for extension under the provisions of Act No. 3039.

However, in spite of great difficulties, a larger amount was paid in during the year 1925 than in any of the previous years, for installments and interest. This is an indication that the rural credit associations are becoming more and more business-like about meeting their obligations. With very few exceptions, no court action will have to be resorted to, to get these associations to pay. So far, the cooperation of provincial fiscals has been asked in only four cases, viz.: Goa, Camarines Sur; Carigara, Leyte; Naic, Cavite; and Capiz, Capiz. All the rest are, it is safe to say, paying with reasonable promptitude.

The following tabulation shows the operations for 1925:

Amount due and unpaid from installments, January 1, 1925	1,261,068.99
Amount collected during 1925	279,050.45
Amount loaned during 1925	86,950.00
Amount due and unpaid for installments, December 31, 1925	114,016.66

FINANCIAL STATISTICS

Since all the municipal treasurers have not yet submitted their trial balances as of December 31, 1925, a complete statement of the present financial condition of all the rural credit associations for the year 1925 can not be given, but the partial list so far received shows that there has been a substantial increase of capital and loans.

The following trial balance for December 31, 1924, as against December 31, 1923, is shown to give some idea of the steady progress of the rural credit associations.

	December 31	
	1923	1924
Number of associations.....	547	546
Number of members.....	77,479	81,971
Number of borrowers.....	26,945	28,725
Number of depositors.....	3,107	2,699
Cash on hand.....	P110,223.90	P114,907.19
Loans to members.....	2,488,835.61	2,631,996.62
Property account.....	3,295.32	4,547.73
Other items.....	2,683.64	2,830.83
Capital stock.....	872,668.00	890,621.00
Deposits.....	109,536.59	103,378.54
Rice and Corn Fund.....	1,023,510.24	967,302.16
Philippine National Bank.....	3,448.44	1,431.26
Other deposits.....	6,599.62	12,318.00
Surplus "A," entrance fee.....	19,912.01	18,882.74
Surplus "B," interest.....	536,839.79	698,518.42
Dividend account.....	11,979.40	30,481.85
Reserve fund.....	18,299.63	28,113.67
Other items.....	2,140.56	3,032.66
Total assets and liabilities.....	2,605,043.47	2,653,781.87

FIBER DIVISION

SCOPE OF WORK

The activities of the Fiber Division during the year 1925 were the inspection of fibers for export; the issuing of Government certificates of inspection and export certificates; collection of inspection fees; instruction of planters and producers in the correct methods of preparing their product for market; tensile strength testing of abaca of different grades; preparation of standard samples for the use of growers, exporters, and other persons interested in the abaca industry; the issuing of Fiber Grading Permits; and answering all correspondence relating to Philippine fibers.

FIBER GRADING AND INSPECTION

The inspection of fibers, particularly abaca fiber, was more rigid during 1925 than during any previous year. Of the total production of abaca, canton, and pacol fibers, 1,109,304 bales were certified as abaca of normal strength, 99,996 bales as abaca damaged, 33,678 bales as canton, and 2,263 bales as pacol fiber. A total of 135,937 bales were certified as damaged and weak fiber, which was about 11 per cent of the total production. The largest percentage of fiber certified as weak and damaged during any previous year was in 1924, when it was 4.4 per cent

Total number of bales of different kinds of fiber grades, baled, inspected, and certified during 1925:

TABLE XL

Kind of fiber	Miscellaneous grades	For tagal braid	Retted	Machines cleaned
Abaca				
Maguay	1,245,241	220		
Maguay			183,823	
Sisal			2,819	310
Sisal				246
Canton	33,678			
Paeol	2,263			

Practical experience during the past year has clearly demonstrated that coarse grade fiber that at the time of classification is of normal strength deteriorates in strength in a few months after being baled and stored. At the time of inspection the fiber may appear to be perfectly normal, but through careless handling and improper drying after stripping it becomes affected by acid and certain fungi which cause a deterioration of tensile strength, beginning shortly after it is stripped; but as this process is very slow, it is several months before any noticeable deterioration occurs. For example, bales of coarse fiber which were pressed by one local company, when opened some months later were found to contain large quantities of weak fiber.

It is believed that there are only two solutions for the problem of weak fiber and consequent complaints from European importers. One is the entire elimination of the production of all coarse grade fiber; the other, which would rather be difficult, lies entirely in the hands of the fiber producers and strippers. If the strippers would strip the fiber immediately after the stalks have been cut and thoroughly dry it before tying it in bundles, fermentation would be prevented and thus, it is believed, the basic cause of weakness of the coarse grades would be eliminated and complaints would automatically cease.

During the year Act No. 3268, effective July 1, 1926, was passed by the Legislature. It provides for the transfer of the fiber inspection work of the Fiber Division of the Bureau to a service to be called the Philippine Fiber Inspection Service and to be controlled by a Fiber Standardization Board consisting of the Director of Agriculture as chairman and executive officer, and of two members to represent the producers, two fiber exporters, and one manufacturer and one middleman.

REVENUE OF THE FIBER DIVISION

From inspection fees on abaca (cordage) normal.....	P110,930.00
From inspection fees on abaca (tagal) normal	22.00
From inspection fees on abaca (damaged)	9,999.60
From inspection fees on abaca (rejected)	3,852.30
From inspection fees on maguey (retted).....	18,382.30
From inspection fees on maguey (machine-cleaned)	31.90
From inspection fees on sisal (retted)	281.30
From inspection fees on sisal (machine-cleaned)	24.60
From inspection fees on canton	3,397.80
From inspection fees on pacol	226.30
Rejected fiber, all kinds except abaca.....	168.30
Total for inspection fees.....	147,286.70
For fiber grading permit fees (1925).....	22,675.00
For the sale of standard samples of fibers.....	302.00
Total revenue of the Fiber Division (1925).....	170,263.70

FIBER GRADING ESTABLISHMENTS DURING THE YEAR 1925

There were 31 fiber grading stations and 138 fiber grading establishments operating in the Philippine Islands during the year 1925, distributed in fourteen provinces.

DIVISION OF PUBLICATIONS

During the year which ended December 31, 1925, the number of publications issued far exceeded that in previous years. The total number of publications released during the year was 133 as against 49 in 1924, an increase of 84. These publications were as follows: one annual report, 3 bulletins, 4 numbers of the Philippine Agricultural Review, 39 new circulars, 70 circulars republished, and 8 miscellaneous publications. The number of publications distributed was 59,002 as against 46,464 the previous years. The following table shows the number of publications issued and distributed in 1924 and 1925:

TABLE XLI

Title of publications	Number of publications issued			Number of publications distributed		
	1924	1925	Increase + Decrease -	1924	1925	Increase + Decrease -
Annual report	1	1	0	1,895	1,691	+ 144
Agricultural Review.....	4	4	0	6,530	6,519	+ 11
Bulletins.....	1	3	+ 2	1,078	3,899	+ 2,821
Circulars.....	27	109	+ 82	38,668	44,226	+ 5,558
Miscellaneous.....	16	8	- 8	1,953	2,225	+ 272
Reprints.....		4	+ 4		309	+ 309
Posters.....		4	+ 4		700	+ 700
Total.....	49	133	+ 84	46,464	59,002	+ 12,538



Some of the recently published circulars of the Bureau of Agriculture

THE PHILIPPINE AGRICULTURAL REVIEW

Besides the four numbers of the Review published during the year a supplement was also published containing the biography of the late Gen. Adriano Hernandez, and the total number of copies distributed was 5,919. The following classification gives the subjects of the articles published during the year.

Coffee	1
Corn	3
Feeding	3
Fiber	1
Forage	2
Fruits	5
General agriculture and economics.....	2
Mongo	1
Peanut	1
Pests of plants and diseases.....	6
Propagation of plants.....	1
Rice	5
Sugar cane	7
Tobacco	2

BULLETINS

Three bulletins were published during 1925 entitled as follows: No. 39, "The Food Plants of the Philippines," third revised edition, by P. J. Wester; No. 40, "Agricultural Credit Coöperative Associations in the Philippines," by Julian C. Balmaceda; and the Spanish edition of the latter which serves as a guide to the rural credit associations in the provinces.

CIRCULARS

Thirty-nine new circulars were published and 70 old ones were ordered republished as against 15 and 12, respectively, for the previous year or an increase of 24 new circulars, and 58 old ones or a total increase of 82 circulars. The following are the new circulars published:

- No. 137—Tobacco Growing in the Cagayan Valley, by Domingo B. Paguirigan. English.
- No. 147—A Catechism on Leaf Tobacco Production, by the Plant Industry Division. English, Spanish, Ibanag, and Ilocano.
- No. 152—The Chayote, by P. J. Wester. English.
- No. 153—Coconut Stem Bleeding Disease, by N. G. Teodoro. English.
- No. 154—The Avocado and Its Propagation, by P. J. Wester. English and Spanish.
- No. 155—A Guide for Examination of Diseased Plants and for Sending Specimens of the Same to the Bureau of Agriculture for Identification, by Dr. N. G. Teodoro. English.

- No. 156—A Guide for Sending Insect Pest Specimens to the Bureau of Agriculture for Identification, by F. Q. Otañes. English.
- No. 157—*Aeginetia indica* in Cane Production, by Dr. N. G. Teodoro. English.
- No. 158—Table Showing Planting Distances for Fruit Trees in the Philippine Islands, by the Plant Industry Division. English and Spanish.
- No. 159—The Rice Stem Borer—*Accep na Pula o Apayang Pula* (Tagalog) *Guetaquet* (Pangasinan), by F. Q. Otañes. English.
- No. 160—The Rice Bug (*Leptocoris acuta* Thunberg), by F. Q. Otañes. English.
- No. 161—Suggestions for the Care of Budded and Grafted Plants, by the Plant Industry Division. English.
- No. 162—A Descriptive List of Some Forage Grasses for Distribution by the Bureau of Agriculture for Trial Planting, by the Plant Industry Division. English.
- No. 163—A Descriptive List of Some Sugar-Cane Varieties Recommended for Trial Planting by the Bureau of Agriculture, by the Plant Industry Division. English.
- No. 164—A Catechism on Mango Production, by F. Octubre. English.
- No. 165—Resin-Kerosene Solution Effective Poison for Locusts, by the Pests Control Division. English.
- No. 166—The Toy Beetle (*Leucopholis Irorata* Chev.) in the Philippines, a Serious Pest, by F. Q. Otañes. English.
- No. 167—The Growing of Sugar Cane in the Philippines, by S. Asuncion. English.
- No. 168—Anthracnose of Eggplant, by J. R. Bogayong. English.
- No. 169—Blight of Gabi (*Phytophthora Colocassiae* Rae), by Eliseo T. Gomez. English.
- No. 170—Sugar Cane Smut, by S. L. Marquez. English.
- No. 171—Diseases of Tobacco (*Nicotiana tabacum* L.) in the Philippines, by F. M. Clara. English.
- No. 172—Method of Planting Abaca Seeds, by the Plant Industry Division. English and Spanish.
- No. 173—Leaf Blight of Corn (Caused by *Helminthosporium inconspicuum* Cke. et Elle.), by Severo L. Marquez. English.
- No. 174—Fiji Disease of Sugar Cane, by Severo L. Marquez. English.
- No. 175—The Cabbage Caterpillar (*Cro. binotalis* Zell.) by Pedro Sison. English.
- No. 176—Banana Diseases in the Philippines, by F. B. Serrano. English.
- No. 177—The Citrus Bark Borer (*Agilus occipitalis* Eschsch.), by J. P. Tan. English.
- No. 178—Castration of Animals, by Jose G. Guevara. English.
- No. 179—Coconut Diseases and Their Control, by Dr. N. G. Teodoro. English.
- No. 180—The Planting of Fruit Trees, by F. G. Galang. English.
- No. 181—A Guide for Visitors to the Lamao Experiment Station of the Bureau of Agriculture at Lamao, Bataan, by the Plant Industry Division. English.
- No. 182—Quarantine Procedure to Guide Importers and Exporters of Plant Materials, by Dr. N. G. Teodoro. English.

- No. 183—Rice Diseases and Their Control, by Dr. N. G. Teodoro and J. R. Bogayong. English.
- No. 184—Brief Notes on the Carabao, by Carlos X. Burgos. English.
- No. 185—Pointers on Goat Raising, by Carlos X. Burgos. English.
- No. 186—Descriptive List with Cultural Directions of Tobacco Varieties Grown and Distributed by the Bureau of Agriculture, by the Plant Industry Division. English.
- No. 187—Rubber Tree Diseases and Their Control, by Dr. N. G. Teodoro. English.
- No. 188—Plant Pests and Diseases: Their Nature and Methods of Control in General, by Dr. N. G. Teodoro. English.

The following are the old circulars reprinted:

Nos. *5, †15, *16, †17, *20, *21, *23, *26, †30, *32, †34, †38, †40, †41, *42, *43, *45, *46, *47, *48, *50, †52, *58, *59, *60, †61, *64, *67, †69, †77, †79, *80, *82, *83, *84, †86, *87, *88, †89, †90, *91, *93, †94, *101, †97, †98, †99, †100, †102, †103, *105, †106, *107, *109, *111, *106, †116, †117, †118, †122, †123, †128, †129, *130, *132, †134, *136, *139, *145.

* English only.

† English and Spanish.

The total number of circulars distributed was 44,268 as against 35,068 in 1924, an increase of 9,200. The distribution by languages was as follows:

	Copies
English	9,850
Spanish	17,736
Dialects	16,532

REPRINTS

Four reprints were ordered during the year. These were important articles published in the *Philippine Agricultural Review*.

MISCELLANEOUS PUBLICATIONS

Besides the above enumerated bulletins, circulars, reprints, etc., eight miscellaneous publications were published. The most important of these were a pamphlet entitled "The Bureau of Agriculture—The Farmers' Bureau," containing an exposition of the work of this Bureau; another containing a compilation of the lectures of some of the technical personnel of this Bureau, broadcasted by the radio; and three pamphlets on poultry in Tagalog.

POSTERS

Four posters were printed during the year: One on tobacco, in English and Ibanag; one on livestock; one on poultry and one on the control of white grubs, in English and Tagalog.

These were distributed in the provinces. There are still other posters in preparation.

LIBRARY

The routine work of the library was carried on as usual, during the year and in addition the entire library has been rearranged, and 300 sets of publications were sent to the Bureau of Printing to be bound. The sorting of miscellaneous publications in the *bodega* is still going on.

Books accessioned.—The total number of books accessioned during the year was 150.

Publications received.—About 2,000 copies of miscellaneous bulletins, circulars, and journals were received.

Articles clipped.—There were about 900 articles clipped from local papers for preservation.

Cuts handled by the Bureau of Printing.—There were 311 cuts handled by the Bureau of Printing, of which number 90 were new.

Cuts loaned.—There were 50 cuts loaned to Government offices and local papers during the year 1925.

Requisition for books.—Requisitions were made for 53 miscellaneous books.

Subscriptions.—During the year subscriptions to 12 miscellaneous journals and local papers were authorized.

OTHER ACTIVITIES

Photographic work.—Two hundred and forty (240) plates and 180 rolls of films were developed and 2,073 prints were made during the year.

Printing machines.—The work done in the multigraph and mimeograph machines of the Bureau of Agriculture is shown in the following table:

TABLE XLII

	1924	1925	Increase
MULTIGRAPH			
Work orders.....	41	86	+ 44
Copies printed.....	371,802	617,976	+246,173
MIMEOGRAPH AND PLANTYPE			
Work orders.....	704	996	+ 292
Copies printed.....	1,203,117	1,218,378	+ 16,261

DIVISION OF FARM STATISTICS

Routine work.—This work was seriously handicapped this year because the municipal presidents were far later than usual

PRODUCE FIRST-CLASS TOBACCO

IT WAS DONE BEFORE—IT CAN BE DONE AGAIN—YOUR ANCESTORS DID IT—SO CAN YOU

HOW?

FORN. LIKE WISE MAN: NO COUPLE SHOULD PLANT MORE
THAN 4000 PLANTS. THEY CAN'T TAKE GOOD CARE OF MORE

SELECT YOUR SEED

WHY?

BECAUSE

1. Early maturing plants suffer less from disease and insect attacks and bushier.
2. Plants that bear vigorously and have put less than 140 standard leaves. It costs just as much to produce a poor crop as a good crop.



3. A uniform crop makes harvesting, curing, and classification easier. Haino Pampore No. 1 for yield, Repello and Espada in the poorer soils, Romero for aroma and the Sirenia variety for strength.

THE SEED YOU PLANT

1. Separate and discard all lightweight seeds by winnowing. 2. Store the heavy seed in airtight containers until sowing time.

SEED BEDS

1. Check the field weather by placing three beds every 20 days in autumn row.
2. Choose high ground beyond the reach of floods.
3. Put butterfly slats around the edges of the beds so the roots won't wash them away.
4. Provide convenient storm drains as protection from water.

FIELD OPERATIONS

1. Place wall and clean

2. Plant early—red later than the latter part of December.

3. keep the soil around the plants well slanted up.

4. Cultivate every 10 days and allow roots to grow.

5. Plant the wrapper in
rich 50-centimeter soil
in rows 80 to 100 cent-
imeters apart.



6. Plant the Miller varieties 600 centimeters apart in 2 cm x 600 to 2700 centimeters apart.

7. Pitch all the Tethys

8. Harvest all markets and top all plants not intended for seed.

4. Begin harvesting at the first sign of flowering and give 3 to 4 leaves at intervals of from 3 to 6 days.

CURING SHEO OPERATIONS

3. Using "public"

2. Stick lillet between leaves close but allow a dot in middle when turning first.

A stick-warrior leaves a finger-space apart and cuts wheels in the shade.

3. Remove the petioles only when the midribs of the leaves are thoroughly dry.

5. Close the shed completely during fast or wind or dust.

10. Heat the sled with a handwood (give a second for the life) for about the size is large.

PREPARATION OF THE LEAVES FOR MARKET

1. Ferment the crop (in case it is not well) right away, by building piles at least 6 feet wide and 10 feet high, according to the size of the crop.

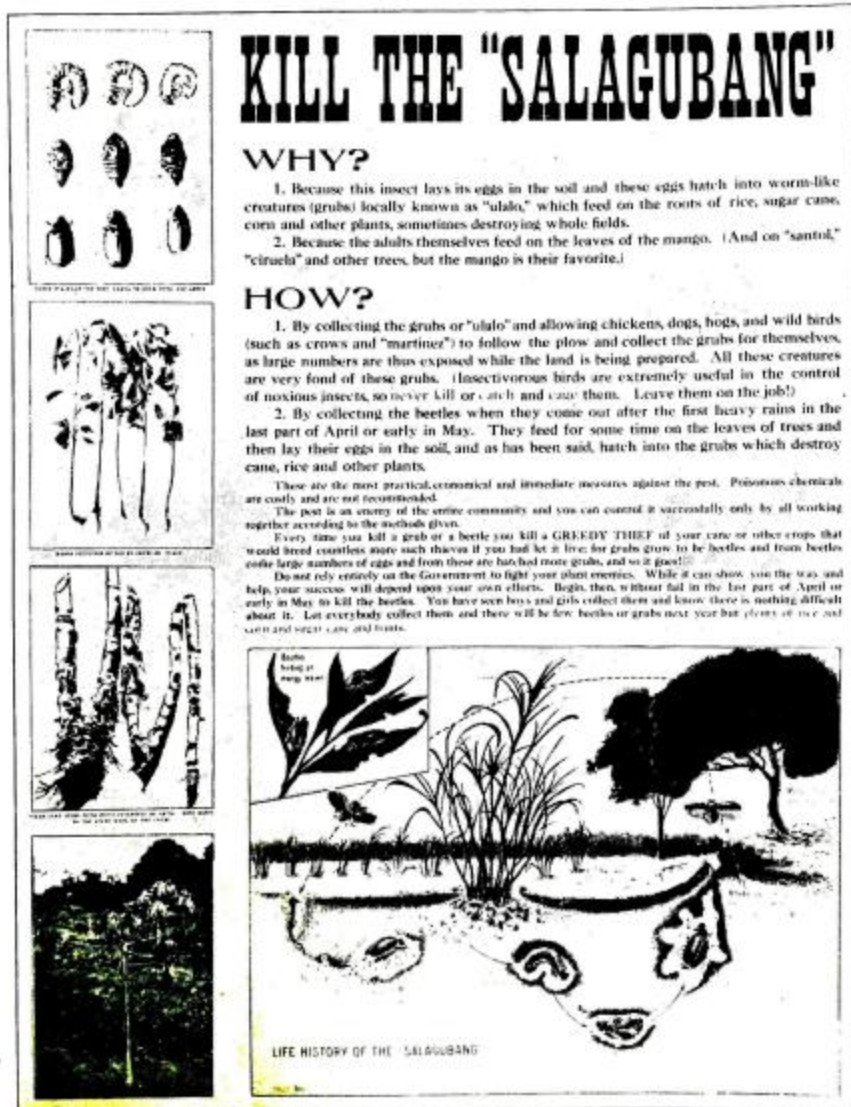
Richard first slowly temperature to 30°C and slowly thereafter until it gets to 82°C. At each re-annealing step, the position of the leaving (A) is put (the mode outside and the 3' end).

2. Submit the leaves according to the official classification of the Bureau of Land Management.

3. The three or four of
 10 to 150 thousand years old
 old fossils of a...



The Tobacco poster of the Bureau of Agriculture, also published in Ibanag (Cagayan) dialect.



The "Salagubang" poster, published in Tagalog and Visayan

WATCH FOR AND DESTROY

THE BUNGA NĠ TUBÓ

(AEGINETIA INDICA)

THIS PRETTY FLOWERING SUGAR CANE ROOT PARASITE

BECAUSE

IT GROWS AND
FEEDS ON
THE ROOTS OF
SUGAR CANE AND
OF CORN AND
RICE ALSO
SOMETIMES HALF
STARVING
THE HOST PLANT
SO THAT THE
YIELD IS
LOW OR EVEN
KILLING IT

AND



BECAUSE

A BIG CLUMP
GROWS
ON A SINGLE ROOT
EVERY STALK
BEARS A
FLOWER AND
EVERY FLOWER
BEARS A MASS OF
TINY SEEDS
THAT WINDS AND
WATER
SCATTER FAR
AND WIDE

Hunt for and Chop Down all you can find. Where there are very many Burn with the Host Plants.

Plow Badly Infested Sugar Cane Fields Deep—Especially Ratoon Stands—and Rotate to some Dicot Crops—Mango, Jack Beans, Camotes, Yams or Cassava.

Plant Leguminous Cover Crops and Plow under for Fertilizer.

REPLANT TO CANE IN EIGHTEEN MONTHS

The Aeginetia indica poster

RAISE BETTER TYPES OF LIVESTOCK

WHAT THE BUREAU OF AGRICULTURE CAN DO YOU ALSO CAN DO



The Mestizo or Grade horse gives far more service to the owner than the Native because it is larger and stronger and faster, and is of better conformation and consequently brings a higher price in the market although it costs almost nothing more to raise him than to raise a Native Pony.



With Mestizo or Grade cattle the cattleman is assured of more meat per head, of better meat and so of higher prices.

Grade males are strong work animals and so bring better prices as work bullocks among the sugar-cane farmers than the natives. They, too, are more resistant to rinderpest. Yet the cost of raising them is no greater than the cost of raising the inferior native animals.



The Carabao is the Right Hand of the rice grower. No other animal can wade through the sticky rice fields but the carabao.

The better the carabao the better the day's work he can do and the more days' work. This reduces the cost of production.

Grade carabaos bring much better prices in the market than Native.

IMPROVE YOUR NATIVE PIGS

By Breeding the Sows to Pure-bred
American Boars

THE RESULTING PIGS WILL BE

GRADES



There is more weight to grade pigs: **c. i., MORE MEAT** and **MORE LARD**; and of better quality: **MORE MARKET DEMAND** and therefore **MORE MONEY** than for the native pigs of the same age.

So it **PAYS FAR BETTER** to raise high grade pigs than native pigs.



HELP REDUCE THE IMPORTATION OF PORK PRODUCTS, THE VALUE OF WHICH
AMOUNTS TO OVER TWO MILLION PESOS EACH YEAR!

DO YOU WANT MORE AND BIGGER EGGS?



Then Get Pure Bred
Roosters and Mate them to
Native Hens



TAKE GOOD CARE OF
THEM AND OF THE RESULTING
MESTIZO CHICKENS

Feed them Well
Give them plenty of Clean Water
Give them Sun and Shade, Shelter
and Exercise
Keep Them Healthy

AND YOU WILL HAVE A FLOCK OF
GOOD LAYERS

EGGS TO EAT, TO SELL AND TO SET FOR
MORE CHICKENS

We Pay China About a Million and a Half Pesos
a Year for Eggs

LET'S KEEP THAT MONEY IN THE COUNTRY!

The Egg poster



in submitting their reports, making it necessary for the Executive Bureau to request the suspension of the salaries of quite a number of them until they forwarded their belated reports.

A considerable portion of the expected reports were not received in fact, until six to ten months after the time they were due, with the result that the work of examining, analyzing and compiling the data reported is not yet done, to say nothing of the considerable amount of extra work entailed because of the necessity for voluminous correspondence between the municipal and provincial offices and this Bureau, most of it through the Executive Bureau to secure the belated crop reports and animal lists.

As stated in past reports, this division compiles annually over six million items. Each and all of these items are carefully analyzed, checked and compared before compilation is done, and further information or correction is requested when errors are detected, as they frequently are.

The compilation work was also delayed on account of the many errors found in the reports submitted by municipal officials which had to be returned for rectification.

It was therefore necessary to prepare preliminary figures for the year 1925 in order to submit the annual report of this division on time.

Distribution of statistical information.—The services of this division in furnishing statistical information is increasing considerably. During the year about 75,000 mimeographed copies of crop and livestock statistics were distributed in the Islands and abroad, or nearly ten times as many as five years ago.

Correspondence.—There were received and sent out 7,416 letters against 5,725 in 1924, or an increase of 29 per cent.

RECOMMENDATIONS

Believing that efficiency can best be promoted by offering our personnel better prospects while in the service, it is hereby recommended that moderate increases in salaries be granted when merited; for experience has shown that in the long run reasonably well-paid employees show more interest in their work and render more satisfactory service than those meagerly paid; and, furthermore, that the latter are, as a rule, more or less discontented and on the lookout for better positions elsewhere.

It is also recommended that the technical personnel of this Bureau be increased in number so as to take care of the increased activities thereof.

Two technical men should be sent abroad: one to investigate the different practices followed in China, Siam, Cochin-China, and Burma in rice culture; and another to study the rubber and fruit industries in far eastern countries such as Ceylon, India, Sumatra, China, etc.

It is requested that two more experiment stations be established in the rice regions: one for lowland rice and another for upland rice; and that a laboratory for research on plant pests and diseases be established in one of the rice growing provinces.

For the purpose of conducting field experiments on various pests and diseases and so that there may be a place where to plant quarantined materials it is advisable to acquire a piece of land about four hectares in area.

The successful results obtained from the imported breeding animals necessitates the importation of additional ones, especially pigs and poultry, in order to continue this work.

The coöperative marketing work should be extended to all agricultural activities in order that the farmers, especially the small ones, may unitedly store and sell their crops at better prices, thus curbing the middlemen.

The following legislation is needed: Acts appropriating money for the eradication of the coconut bud-rot, the water lily, and rats.

The Rural Credit Laws should also be amended so as:

(a) To grant the Director of Agriculture more extensive power than that now allowed him by the law, to make his authority more nearly commensurate with his responsibility. At present the Director of Agriculture is a mere adviser and supervisor of the Rural Credit Associations. He can not even put a stop to irregularities in the operations of the associations, as he is debarred from taking any drastic measure to close a dangerous association or even remove unworthy directors.

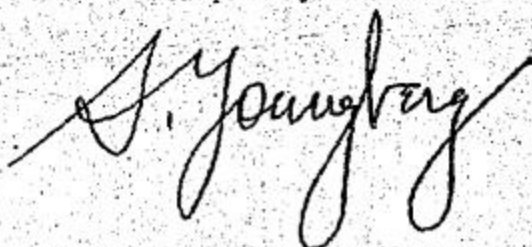
(b) To give all the existing associations more extended privileges and exemptions so as to facilitate their development with due expediency and to remove all aspersions on their methods of administration.

The recommendation submitted in last year's report to the effect that an additional appropriation should be set aside for printing purposes in order to enable this Bureau to publish its pamphlets in native dialects for the benefit of farmers who

are unable to read English or Spanish, is hereby reiterated. In line with this recommendation it is hereby recommended that the bill submitted in the Philippine Legislature during its last session appropriating a certain sum for the same purpose be supported by the administration.

And lastly it is recommended that an additional appropriation be requested to take care of different needs of this Bureau such as for the repair of old buildings, the construction of necessary new ones in our stations, the purchase of equipment, etc.

Respectfully submitted.

A large, stylized handwritten signature in dark ink, appearing to read 'J. Youngberg'. The signature is written in a cursive style with long, sweeping strokes.

Director of Agriculture

The Honorable,
The SECRETARY OF AGRICULTURE
AND NATURAL RESOURCES,
Manila, P. I.

APPENDIX

TABLE A.—Comparative statistics on the principal crops of the Philippine Islands for the years ending June 30, 1924 and 1925

Crops	Area cultivated		Products	Amount produced	
	1925	1924		1925	1924
	<i>Hectares</i>	<i>Hectares</i>			
Rice.....	1,725,500	1,737,910	Rough rice.....cavans..	45,682,600	41,570,700
Sugar cane	239,470	227,190	Sugar.....piculs..	10,659,480	7,182,640
			Panocha (small cakes).....do..	521,030	456,100
			Basil (a beverage).....liters..	4,315,210	3,880,670
			Molasses.....do..	4,853,860	2,976,850
			Ripe nuts as food.....nuts..	110,678,000	45,688,000
Coconuts (average of 190 trees per hectare)	472,050	460,440	Copra.....piculs..	5,728,800	6,119,150
			Coconut oil.....liters..	1,994,450	1,865,770
			Tuba (a beverage).....do..	87,252,230	114,581,800
Abaca.....	477,110	485,340	Abaca (Manila hemp).....piculs..	2,853,670	3,125,450
Corn.....	522,380	533,230	Shelled corn.....cavans..	7,606,110	7,830,320
Tobacco.....	71,630	72,090	Tobacco leaf.....quintals..	910,910	941,800
Magney.....	31,100	29,380	Magney.....piculs..	456,000	443,010
Cacao.....	1,400	1,380	Cacao.....kilos..	1,111,980	1,160,800
Coffee.....	930	900	Coffee.....do..	1,178,200	1,173,600
Total.....	3,641,670	3,547,860			

Crops	Products	Average price in the municipal markets		Value of sugar cane and coconut products in the municipal markets		Total value in the municipal markets	
		1925	1924	1925	1924	1925	1924
Rice.....	Rough rice.....	P4.20	P4.20			P192,179,270	P172,987,290
	Sugar.....	10.06	14.06	P107,249,810	P100,290,970		
	Panochas (small cakes).....	8.39	9.50	4,371,010	4,332,820		
Sugar cane.....	Basil (a beverage).....	.15	.17	668,650	681,250		
	Molasses.....	.09	.13	440,480	392,140		
	Total value of all sugar-cane products.....					112,729,500	105,687,180
	Ripe nuts as food.....	.03	.03	3,830,250	1,628,908		
Coconuts (average of 190 trees per hectare).....	Copra.....	10.47	9.89	69,958,320	67,478,020		
	Coconut oil.....	.43	.41	861,060	758,840		
	Tuba (a beverage).....	.08	.07	7,207,189	8,270,810		
	Total value of all coconut products.....					71,847,990	69,134,870
Abaca.....	Abaca (Manila hemp).....	22.63	13.82			64,296,249	43,186,260
Corn.....	Shelled corn.....	4.00	4.20			39,767,250	37,969,960
Tobacco.....	Tobacco leaf.....	13.05	12.22			11,821,590	11,608,420
Maguay.....	Maguay.....	12.46	8.24			5,632,630	3,649,140
Cacao.....	Cacao.....	1.07	1.04			1,189,700	1,208,600
Coffee.....	Coffee.....	.71	.69			836,300	806,500
Total.....						491,420,160	440,417,110

EQUIVALENTS

1 cavan of rough rice equals 44 kilos.

1 cavan of cleaned rice equals 57.5 kilos.

1 cavan of shelled corn equals 58 kilos.

1 picul equals 63.25 kilos.

1 quintal equals 46 kilos.

P1 (Philippine currency) equals \$0.50 (U. S. A. currency).

(Compiled from the official reports submitted by municipal presidents, by ANTONIO PERA, Chief, Division of Farm Statistics).

TABLE B.—*Palay (rough rice)—Area cultivated and production by provinces for the years ending June 30, 1924 and 1925*

Provinces	Area cultivated		Increase or Decrease	Production		Increase or Decrease
	1925	1924		1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Cavans</i> ¹	<i>Cavans</i> ¹	<i>Per cent</i>
Abra.....	15,740	15,210	+ 3	312,300	270,100	+ 16
Agusan.....	5,740	6,620	+ 2	162,700	133,600	+ 14
Albay.....	37,210	35,810	+ 1	1,012,700	958,400	+ 6
Antique.....	30,890	31,540	-11	534,100	645,700	-13
Bataan.....	16,650	17,150	- 4	584,300	459,500	+ 27
Batanes.....	180	250	-23	2,700	3,400	- 21
Butangas.....	53,240	54,440	- 2	663,400	708,500	- 6
Hohol.....	48,260	58,220	-17	982,200	994,600	- 9
Hukidnon.....	2,160	2,546	-15	39,500	41,000	- 3
Ibalacan.....	58,900	57,950	+ 2	1,688,500	1,547,500	+ 9
Cagayan.....	37,860	37,620	+ 1	980,700	826,800	+ 19
Camarines Norte.....	5,890	6,910	- 1	148,600	117,300	+ 27
Camarines Sur.....	47,040	45,600	+ 3	1,231,800	933,100	+ 32
Capiz.....	64,630	66,550	- 3	1,823,000	1,744,000	+ 5
Cavite.....	32,619	30,290	+ 7	789,300	671,800	+ 17
Cebu.....	7,710	8,550	-10	127,500	137,500	- 7
Cotabato.....	12,710	12,900	- 2	317,200	306,900	+ 3
Davao.....	12,000	12,840	- 7	268,700	240,800	+ 12
Iloos Norte.....	62,680	62,650	- 1	1,295,800	1,062,700	+ 29
Iloos Sur.....	41,990	43,250	- 3	861,900	769,000	+ 12
Iloilo.....	123,510	128,160	- 4	2,828,000	2,962,700	- 5
Isabela.....	5,460	6,480	- 1	113,300	105,000	+ 7
Laguna.....	25,100	24,000	+ 1	687,800	555,400	+ 16
Lanao.....	20,900	20,390	+ 3	616,500	597,800	+ 3
La Union.....	52,400	48,850	+ 7	1,177,600	840,500	+ 40
Leyte.....	44,220	43,440	+ 2	1,015,800	870,700	+ 17
Marinduque.....	14,470	14,060	+ 3	302,000	346,500	- 13
Masbate.....	3,700	3,190	+10	78,600	47,900	+ 64
Mindoro.....	16,600	15,950	+ 4	323,900	268,600	+ 21
Misamis.....	13,020	12,490	+ 4	414,500	361,600	+ 15
Mountain Province.....	51,190	53,000	- 3	1,100,700	1,054,500	+ 4
Nueva Ecija.....	177,710	174,850	+ 2	7,143,000	6,416,700	+ 11
Nueva Vizcaya.....	11,880	11,070	+ 7	399,000	300,300	+ 33
Occidental Negros.....	38,620	43,160	-11	857,600	997,800	- 14
Oriental Negros.....	7,110	7,540	- 6	168,000	153,500	+ 9
Palawan.....	6,250	5,300	+18	107,900	71,700	+ 50
Pampanga.....	71,110	73,460	- 3	1,802,000	1,579,000	+ 14
Pangasinan.....	195,890	188,650	+ 4	7,025,000	6,362,300	+ 10
Rizal.....	24,410	22,710	+ 7	718,000	559,900	+ 28
Romblon.....	8,170	8,640	- 5	139,300	146,700	- 6
Samar.....	22,160	20,740	+ 7	435,100	437,000	- 1
Sorsogon.....	19,860	20,730	- 4	362,900	335,400	+ 5
Sulu.....	2,420	1,280	+80	63,400	25,200	+112
Surigao.....	24,190	24,430	- 1	475,800	439,600	+ 8
Tarlac.....	80,120	82,620	- 3	1,840,600	1,667,700	+ 10
Tayabas.....	32,880	34,100	- 4	756,300	704,500	+ 7
Zambales.....	24,830	25,640	- 3	556,400	486,600	+ 14
Zamboanga.....	11,530	11,070	- 4	322,800	324,700	- 1
Philippine Islands.....	1,725,500	1,737,910	- 1	45,652,600	41,670,700	+ 10

¹ 1 cavan=75 liters=44 kilos including sack.

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TABLE C.—Palay (rough rice)—Average yield per hectare and average price and value of production in the municipal markets, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average production per hectare		Average price per cavan		Total value		Increase or Decrease
	1925	1924	1925	1924	1925	1924	
Abra.....	Carang 1	Carang 1					Per cent
Agusan.....	20	18	P8.20	P6.20	P1,614,440	P1,680,650	+ 4
Albay.....	23	26	3.50	2.50	531,760	304,200	+ 35
Antique.....	27	26	4.40	4.00	4,423,160	3,810,730	+ 16
Bataan.....	17	19	4.00	3.60	2,122,570	2,305,840	- 8
	35	27	4.70	4.40	2,749,930	2,032,740	+ 35
Batanes.....	15	14	5.30	5.60	16,050	22,450	- 24
Batangas.....	12	13	4.80	4.50	3,207,760	3,186,400	+ 1
Bohol.....	19	17	4.70	4.40	4,273,660	4,429,120	- 4
Bukidnon.....	18	16	4.50	5.20	180,300	212,400	- 15
Bulacan.....	23	27	4.20	4.20	7,133,320	6,609,060	+ 10
Cagayan.....	26	22	5.20	4.80	5,100,750	3,560,500	+ 43
Camarines Norte.....	21	17	5.10	4.60	764,720	538,250	+ 40
Camarines Sur.....	26	20	4.30	3.70	5,261,370	3,415,470	+ 54
Capiz.....	28	26	4.00	3.10	7,319,370	5,486,190	+ 33
Cavite.....	24	22	4.50	4.90	3,629,780	3,908,480	- 7
Cebu.....	17	16	5.00	4.90	637,300	680,190	- 6
Cotabato.....	25	24	3.70	3.30	1,179,620	999,520	+ 18
Davao.....	23	18	3.10	4.20	841,060	1,018,440	- 17
Ilocos Norte.....	21	16	6.80	6.70	7,582,380	6,702,330	+ 13
Ilocos Sur.....	20	18	5.20	6.60	4,437,340	5,307,820	- 16
Iloilo.....	23	23	4.50	4.10	12,785,980	12,315,360	+ 4
Isabela.....	21	19	9.30	6.60	1,169,960	760,240	+ 67
Laguna.....	27	24	4.20	4.70	2,882,940	2,810,480	+ 3
Lanao.....	29	29	3.00	2.70	1,861,110	1,640,800	+ 13
La Union.....	22	17	5.60	5.80	6,544,260	4,959,510	+ 32
Leyte.....	23	20	4.20	4.10	4,320,580	3,664,500	+ 21
Marikina.....	27	25	4.20	3.80	1,658,820	1,336,360	+ 24
Marikina.....	21	16	3.70	3.70	289,560	177,320	+ 63
Mindoro.....	19	17	4.20	3.60	1,368,380	941,330	+ 46
Misamis.....	32	29	4.40	3.70	1,811,630	1,342,500	+ 35
Mountain Province.....	22	20	6.10	4.90	6,746,380	5,160,610	+ 31
Nueva Ecija.....	40	37	3.40	3.60	24,421,660	23,160,170	+ 5
Nueva Vizcaya.....	33	27	5.40	3.30	2,169,740	1,000,020	+ 117
Occidental Negros.....	22	23	4.70	3.50	3,996,620	3,467,650	+ 16
Oriental Negros.....	24	20	4.10	4.10	688,390	626,950	+ 10
Palawan.....	17	13	4.20	4.40	452,930	319,070	+ 42
Pampanga.....	25	22	4.10	4.10	7,854,450	6,461,600	+ 14
Pangasinan.....	30	34	3.00	4.00	25,497,710	25,803,460	- 1
Rizal.....	29	26	4.40	4.60	3,173,770	2,503,300	+ 27
Romblon.....	17	17	3.80	4.20	529,280	626,350	- 15
Samar.....	20	21	3.70	3.90	1,632,060	1,706,180	- 4
Sorogon.....	18	15	3.80	4.00	1,367,200	1,347,240	+ 1
Sulu.....	22	20	4.10	4.20	219,300	107,200	+ 105
Surigao.....	20	18	4.00	3.30	1,932,950	1,473,390	+ 31
Tarlac.....	23	20	3.40	3.70	6,240,240	6,266,250	- 1
Tayabas.....	23	21	7.20	6.00	5,443,280	4,864,540	+ 12
Zambales.....	22	19	3.10	3.70	1,712,420	1,808,260	- 5
Zamboanga.....	28	27	3.00	2.70	964,890	872,550	+ 11
Philippine Islands.....	26	24	4.20	4.20	182,179,270	172,937,290	+ 11

1 cavan=75 liters=44 kilos including sack.

TABLE D.—Sugar cane—Area cultivated and production of sugar and panochas, by provinces for the years ending June 30, 1924 and 1925

Provinces	Area cultivated		Increase or decrease	Sugar		Panocha	
	1925	1924		1925	1924	1925	1924
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Piculs¹</i>	<i>Piculs¹</i>	<i>Piculs¹</i>	<i>Piculs¹</i>
Abra.....	820	630	+ 30	80	60	7,690	4,540
Agusan.....	200	150	+ 33	230	180	1,380	.....
Albay.....	1,130	1,020	+ 11	2,760	.....	11,330	8,020
Antique.....	3,200	3,840	- 14	70,450	76,080	1,100	290
Bataan.....	4,770	4,290	+ 11	79,180	69,860	.....	.....
Batanes.....	70	60	+ 17	.....	.....	140	60
Batangas.....	24,550	27,800	- 12	705,490	601,470	.....	.....
Bohol.....	1,230	1,020	+ 20	4,080	4,070	20,830	13,630
Bukidnon.....	140	90	+ 55	.....	.....	1,220	2,550
Bulacan.....	3,110	2,550	+ 22	58,470	52,880	350	400
Cagayan.....	270	300	- 10	60	80	1,750	2,380
Camarines Norte.....	210	190	+ 10	310	.....	2,440	1,790
Camarines Sur.....	890	870	+ 2	.....	.....	12,390	12,180
Capiz.....	2,320	3,030	- 4	132,520	116,390	24,110	16,770
Cavite.....	2,520	2,430	+ 4	64,720	50,350	9,370	19,150
Cebu.....	6,030	5,010	+ 20	115,580	103,050	19,740	22,770
Cotabato.....	50	20	+ 150	.....	.....	1,210	600
Davao.....	70	70	.....	.....	.....	100	.....
Ilocos Norte.....	4,070	3,500	+ 16	.....	.....	33,550	26,520
Ilocos Sur.....	11,220	10,010	+ 12	280,100	263,440	25,470	9,830
Iloilo.....	15,180	10,600	+ 43	425,790	321,260	.....	.....
Isabela.....	560	400	+ 40	.....	.....	3,500	3,810
Languna.....	8,340	7,980	+ 12	413,240	193,850	68,180	64,870
Lanao.....	500	430	+ 16	17,760	16,560	670	80
La Union.....	3,250	3,080	+ 6	37,320	28,950	61,890	50,870
Leyte.....	1,340	1,010	+ 33	7,260	1,760	18,180	16,460
Marinduque.....	440	320	+ 37	.....	.....	5,230	3,440
Masbate.....	150	180	- 19	.....	.....	2,480	2,020
Mindoro.....	2,550	1,670	+ 53	88,060	74,780	3,030	2,520
Misamis.....	80	70	+ 14	900	830	620	250
Mountain Province.....	540	460	+ 17	10	1,560	3,620	1,370
Nueva Ecija.....	1,590	1,270	+ 18	16,070	9,570	19,360	17,580
Nueva Vizcaya.....	240	210	+ 14	.....	.....	3,800	3,970
Occidental Negros.....	68,960	69,480	- 1	5,730,870	3,739,940	.....	.....
Oriental Negros.....	4,310	4,590	.....	474,450	235,690	20	70
Palawan.....	20	20	.....	.....	.....	400	360
Pampanga.....	37,250	35,770	+ 4	1,554,950	808,100	6,000	1,100
Pangasinan.....	6,270	5,810	+ 8	84,100	77,500	23,420	25,790
Rizal.....	1,570	1,510	+ 10	21,350	16,040	6,970	7,150
Romblon.....	10	.....	.....	.....	.....	160	.....
Samar.....	560	460	+ 22	100	.....	7,240	4,130
Sorsogon.....	3,220	2,900	+ 13	.....	.....	50,550	42,770
Sulu.....	110	.....	.....	2,360	.....	.....	.....
Surigao.....	420	230	+ 87	.....	90	9,990	6,850
Tarlac.....	11,880	10,630	+ 13	301,970	266,340	51,940	33,220
Tayabas.....	510	490	+ 4	.....	130	10,800	7,960
Zamboanga.....	590	490	+ 47	3,370	720	6,590	5,730
Zamboanga.....	160	140	+ 14	1,190	1,150	2,250	3,610
Philippine Islands.....	239,470	227,190	+ 5	10,859,480	7,132,640	621,030	456,100

¹ 1 picul=63.25 kilos.

TABLE E.—Sugar cane—Average yield per hectare, average prices and total value, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per hectare of sugar and panocha combined		Average price in the municipal markets				Total value of all sugar-cane products in the municipal markets		Increase or decrease
			Sugar per picul		Panocha per picul				
	1925	1924	1925	1924	1925	1924	1925	1924	
	Piculs	Piculs							Per cent
Abra.....	9.3	7.3	P9.00	P8.38	P6.91	P6.37	P70,180	P70,870	+27
Agusan.....	8.0	1.2	9.56	16.17	13.41		36,350	28,200	+25
Albay.....	12.5	7.9	6.00		8.27	8.18	124,100	67,280	+84
Antique.....	21.7	19.9	5.84	10.87	6.09	7.45	403,660	791,400	+49
Batangas.....	16.6	16.3	7.93	11.48			829,020	802,570	+32
Batavia.....	2.0	1.0			10.00	10.53	17,490	9,660	+81
Batangas.....	28.7	21.6	7.18	8.71			6,070,820	6,237,430	-3
Bohol.....	20.1	17.3	10.95	10.59	9.22	10.74	234,880	189,540	+24
Hukidnon.....	8.7	28.3			10.04	10.00	22,370	26,340	-16
Dulacan.....	18.9	20.9	10.88	14.79	5.00	4.00	650,910	794,560	-18
Cagayan.....	6.7	8.3	9.33	11.37	9.46	10.23	58,380	57,200	-3
Camagines Norte.....	18.1	9.4	10.16		11.22	11.75	30,570	21,250	+44
Camagines Sur.....	13.8	14.0			7.72	6.71	95,400	83,580	+14
Capiz.....	53.7	43.9	11.14	12.68	10.89	12.46	1,740,470	1,684,640	+3
Cavite.....	29.4	28.6	8.69	10.22	7.20	8.65	623,860	680,240	-7
Cebu.....	22.4	25.1	7.99	10.71	6.22	9.97	1,045,200	1,331,610	-21
Cotabato.....	24.2	30.0			10.87	11.60	12,560	8,160	+54
Davao.....	1.4				10.00		8,990	4,660	+93
Ilocos Norte.....	8.2	7.6			5.03	5.59	606,880	637,950	-13
Ilocos Sur.....	21.0	27.3	5.00	5.09	8.88	7.86	1,540,980	2,505,650	-39
Iloilo.....	23.0	30.3	8.67	11.95			3,693,320	3,639,680	+4
Izabela.....	6.3	9.0			7.64	7.15	85,810	65,890	+30
Laguna.....	52.7	32.4	10.84	13.82	14.47	14.56	5,327,670	3,628,430	+47
Lanao.....	36.7	38.5	10.14	10.27	11.58	14.00	167,720	172,810	-9
La Union.....	27.2	28.8	7.37	9.80	5.69	5.75	636,860	649,060	-2
Leyte.....	19.0	18.0	8.91	11.29	10.02	9.92	246,840	185,550	+33
Mariquina.....	12.0	10.7			10.69	10.68	66,440	36,730	+84
Mashate.....	16.5	16.2			7.57	16.00	19,180	47,630	-60
Mindoro.....	35.7	40.5	9.96	9.96	12.02	11.76	913,860	839,170	+9
Misamis.....	20.1	15.6	13.13	14.06	13.55	7.19	21,400	13,540	+68
Mountain Province.....	6.7	6.4	10.00	5.22	7.03	19.82	55,990	74,720	-25
Nueva Ecija.....	19.6	21.7	10.89	11.68	8.78	9.16	287,090	288,940	-1
Nueva Vizcaya.....	15.8	18.9			11.87	11.74	56,810	170,370	-67
Occidental Negros.....	83.1	53.8	10.94	15.90			62,863,720	59,450,370	+6
Oriental Negros.....	96.6	48.2	11.72	15.63	12.00	10.71	5,561,670	3,685,380	+51
Palawan.....	20.0	17.5			10.00	10.00	4,000	3,600	+14
Pampanga.....	41.9	22.6	9.35	14.64	8.08	11.06	14,595,900	11,858,370	+23
Pangasinan.....	17.1	17.8	10.81	13.00	9.03	14.48	1,297,630	1,491,700	-19

TABLE E.—*Sugar cane—Average yield per hectare, average prices and total value, by provinces, for the years ending June 30, 1924 and 1925—Continued*

Provinces	Average yield per hectare of sugar and panocha combined		Average price in the municipal markets				Total value of all sugar-cane products in the municipal markets		Increase or decrease
			Sugar per picul		Panocha per picul				
	1925	1924	1925	1924	1925	1924	1925	1924	
	Piculs	Piculs							Per cent
Rizal.....	17.0	15.3	P9.68	P12.97	P9.07	P9.32	P273,760	P275,570	— 1
Romblon.....	16.0				12.94		2,070		
Samar.....	13.1	9.0	10.00		7.39	10.63	55,140	44,070	+25
Sorsogon.....	15.4	14.7			5.71	7.06	289,060	302,320	— 4
Sulu.....	21.4		9.60				21,910		
Surigao.....	23.2	25.8		19.22	14.17	14.20	141,660	86,930	+63
Tarlac.....	29.8	28.4	8.46	11.51	5.43	7.66	2,843,040	3,331,930	— 15
Tayabas.....	21.2	16.4		9.54	8.91	11.61	101,040	93,160	+ 8
Zambales.....	17.4	16.1	7.33	11.12	9.17	7.99	91,100	56,300	+62
Zamboanga.....	21.5	26.8	10.60	13.98	9.92	9.97	35,710	42,770	— 17
Philippine Islands.....	46.7	33.4	10.06	14.06	8.39	9.50	112,729,900	105,667,180	+ 7

TABLE F.—Coconut—Trees cultivated and trees bearing, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Trees cultivated		Increase or decrease	Trees bearing	
	1925	1924		1925	1924
	<i>Number</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Number</i>
Abra.....	9,730	8,290	+17	3,670	3,520
Agusan.....	630,610	577,510	+9	285,190	263,620
Albay.....	4,192,860	4,140,760	+1	2,583,370	2,536,720
Antique.....	482,540	474,800	+2	268,220	263,890
Bataan.....	34,370	34,900	-2	12,690	12,470
Batanes.....	19,840	20,080	-1	10,100	10,270
Batangas.....	976,530	922,590	+6	371,240	363,590
Bohol.....	2,409,620	2,316,170	+4	1,617,590	1,547,830
Bukidnon.....	5,020	4,810	+16	1,830	1,830
Bulacan.....	29,750	29,790	.....	4,760	4,840
Cagayan.....	265,190	264,320	.....	88,160	85,920
Camarines Norte.....	1,911,120	1,899,730	.....	1,083,050	1,081,090
Camarines Sur.....	2,169,160	2,242,080	-3	1,275,540	1,204,980
Capiz.....	2,281,680	2,350,340	-3	1,306,110	1,304,010
Cavite.....	508,660	274,710	+83	200,010	105,450
Cebu.....	6,740,800	6,592,660	+2	4,285,620	4,233,760
Cotabato.....	533,880	522,230	+2	132,870	107,590
Davao.....	1,141,930	1,109,250	+3	422,600	365,160
Ilocos Norte.....	62,110	54,030	+15	15,310	15,720
Ilocos Sur.....	133,440	129,420	+3	88,800	86,180
Iloilo.....	1,940,710	1,859,520	+4	891,900	911,320
Isabela.....	18,410	15,010	+23	6,570	6,200
Laguna.....	9,135,890	9,049,230	+1	6,535,190	6,374,650
Lansao.....	505,960	432,780	+17	273,310	221,340
La Union.....	188,620	186,060	+1	114,520	110,870
Leyte.....	3,579,910	3,435,610	+4	2,408,310	2,304,380
Marinduque.....	2,169,380	2,128,540	+2	1,369,210	1,376,790
Masbate.....	1,372,230	1,376,290	.....	860,750	764,650
Mindoro.....	1,998,190	1,881,960	+6	676,220	519,020
Misamis.....	5,053,280	4,993,240	+1	3,209,250	3,148,840
Mountain Province.....	17,560	17,770	+3	7,470	10,830
Nueva Ecija.....	36,070	35,320	+2	19,230	18,870
Nueva Vizcaya.....	7,420	6,010	+23	1,920	1,590
Occidental Negros.....	1,296,310	1,240,370	+4	807,810	780,690
Oriental Negros.....	1,942,000	1,806,420	+7	1,364,620	1,275,760
Palawan.....	561,750	524,430	+7	258,550	242,630
Pampanga.....	3,650	3,650	.....	3,500	3,500
Pangasinan.....	2,159,930	2,068,540	+4	1,101,310	1,054,880
Rizal.....	20,620	14,680	+40	1,660	1,010
Romblon.....	2,003,200	1,926,320	+4	1,039,240	976,090
Samar.....	5,428,700	5,297,510	+2	3,427,720	3,393,090
Sorsogon.....	1,500,010	1,450,790	+3	871,740	857,880
Sulu.....	539,310	495,740	+9	375,530	356,520
Surigao.....	1,322,630	1,275,320	+4	918,760	878,740
Tarlac.....	66,940	65,090	+3	42,400	40,120
Tayabas.....	18,874,350	18,666,260	+1	10,383,730	9,829,010
Zambales.....	266,780	241,390	+10	169,060	166,110
Zamboanga.....	3,094,220	2,998,180	+3	1,969,670	1,940,780
Philippine Islands.....	89,637,770	87,460,000	+2	53,165,880	51,154,600

TABLE G.—Coconut—Nuts gathered and tuba produced, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Nuts gathered		Increase or decrease	Tuba	
	1925	1924		1925	1924
	Number	Number	Per cent	Liters	Liters
Abra.....	63,000	59,000	+ 7		
Agusan.....	10,183,000	6,028,000	+ 69	959,800	1,077,510
Albay.....	49,827,000	45,800,000	+ 9	1,492,510	1,666,110
Antique.....	6,023,000	5,193,000	+ 16	1,199,900	1,440,630
Bataan.....	167,000	84,000	+ 99		
Batanes.....	168,000	36,000	+200		
Batangas.....	14,182,000	10,550,000	+ 34		
Bahol.....	54,076,000	58,637,000	- 8	3,690,150	4,119,870
Bulacan.....	40,000	25,000	+ 60	6,000	4,930
Bulacan.....	187,000	167,000	+ 12		
Cagayan.....	1,485,000	1,415,000	+ 5		
Camarines Norte.....	27,610,000	17,536,000	+ 56	20,000	28,500
Camarines Sur.....	41,410,000	36,247,000	+ 14	2,114,100	2,662,010
Capiz.....	25,854,000	20,245,000	+ 26	5,453,180	6,620,770
Cavite.....	8,903,000	3,494,000	+155		
Cebu.....	111,965,000	130,163,000	- 14	25,870,240	43,500,250
Cotabato.....	2,500,000	1,769,000	+ 41	61,340	21,460
Davao.....	9,508,000	8,126,000	+ 17	73,190	71,770
Ilocos Norte.....	322,000	97,000	+232		
Ilocos Sur.....	1,959,900	2,476,000	- 21		
Iloilo.....	16,293,000	12,172,000	+ 34	16,842,420	23,040,470
Ispahan.....	123,000	123,000			
Laguna.....	271,716,000	294,081,000	- 8	395,150	674,670
Lanao.....	6,803,000	5,359,000	+ 27	287,850	213,500
La Union.....	2,474,000	2,745,000	- 10		
Leyte.....	64,853,000	71,021,000	- 9	5,617,700	5,806,790
Marinduque.....	30,923,000	36,071,000	- 14	547,250	573,590
Marbato.....	15,393,000	16,071,000	- 1	614,160	488,500
Mindoro.....	18,681,000	16,598,000	+ 12	384,050	437,200
Misamis.....	121,592,000	137,454,000	- 12	3,217,110	4,113,400
Mountain Province.....	60,000	138,000	- 57		
Nueva Ecija.....	199,000	189,000	+ 5		
Nueva Vizcaya.....	25,000	16,000	+ 56		
Occidental Negros.....	23,842,000	21,101,000	+ 13	5,920,050	6,282,450
Oriental Negros.....	46,565,000	51,920,000	- 10	3,960,930	3,469,030
Palawan.....	8,807,000	9,791,000	- 10	566,430	469,390
Pampanga.....	35,000	41,000	- 16		
Pangasinan.....	16,261,000	14,415,000	+ 6	850	
Rizal.....	14,000	5,000	+180		
Romblon.....	23,009,000	23,091,000	- 2	1,401,780	1,629,140
Samar.....	81,199,000	95,794,000	- 15	2,899,320	3,117,660
Sorogon.....	23,498,000	19,109,000	+ 23	224,830	223,620
Sulu.....	8,682,000	9,762,000	- 11	10,170	6,160
Surigao.....	26,879,000	24,387,000	+ 10	1,676,960	1,966,510
Tarlac.....	502,000	483,000	+ 4		
Tayabas.....	340,427,000	369,287,000	+ 10	1,290,570	1,182,850
Zambales.....	3,439,000	3,130,000	+ 10	70,000	62,400
Zamboanga.....	66,020,000	63,167,000	+ 24	1,144,640	656,010
Philippine Islands.....	1,584,519,000	1,575,629,000	.....	87,262,230	114,581,800

TABLE H.—Coconut—Consumption of fresh nuts and production of copra and oil (home-made), by provinces, for the years ending June 30, 1924 and 1925

Provinces	Number of nuts consumed for food		Production of coconut products				
	1925	1924	Copra		Increase or decrease	Oil	
			1925	1924		1925	1924
	Thou- sands	Thou- sands	Piculs ¹	Piculs ¹	Per cent	Liters	Liters
Abra.....	53	54	.....	.....	.....	1,000	490
Agusan.....	504	353	38,780	22,570	+72	2,170	5,900
Albay.....	3,526	5,168	167,810	152,710	+10	112,450	231,450
Antique.....	309	718	15,900	13,680	+16	96,410	47,220
Bataan.....	167	84	.....	.....	.....	.....	.....
Batanes.....	99	19	.....	.....	.....	740	1,600
Batangas.....	1,099	1,150	45,290	36,180	+25	1,090	4,040
Bohol.....	1,044	621	195,860	227,370	-14	102,960	84,130
Bukidnon.....	36	23	10	10	.....	.....	.....
Bulacan.....	187	167	.....	.....	.....	.....	.....
Cagayan.....	1,404	1,335	.....	.....	.....	7,860	8,050
Camarines Norte.....	508	284	101,160	73,050	+38	9,600	16,910
Camarines Sur.....	5,521	2,934	123,760	115,980	+7	401,660	307,550
Capiz.....	774	736	98,770	82,290	+20	19,970	15,090
Cavite.....	4,147	203	14,940	13,520	+10	1,160	1,310
Cebu.....	3,038	3,126	400,590	464,460	-14	81,260	126,550
Cotabato.....	1,335	834	3,860	2,750	+40	21,650	15,270
Davao.....	1,360	509	32,000	29,550	+8	2,820	6,040
Iloco Norte.....	253	50	.....	.....	.....	7,490	4,590
Iloco Sur.....	1,145	1,485	2,140	2,070	+3	30,270	40,220
Iloilo.....	2,642	877	47,400	41,090	+15	21,620	23,920
Isabela.....	90	96	.....	.....	.....	3,560	2,600
Laguna.....	33,001	8,870	923,780	1,221,410	-24	543,030	342,340
Lanao.....	1,391	923	22,960	18,840	+22	9,690	8,900
La Union.....	448	582	6,680	6,070	+10	33,550	43,270
Leyte.....	1,194	965	255,470	289,400	-12	19,650	14,300
Marinduque.....	104	153	147,890	170,730	-13	800	1,440
Masbate.....	189	221	62,870	63,710	-1	5,400	6,760
Mindoro.....	526	921	63,050	58,990	+7	3,980	3,760
Misamis.....	309	321	479,040	545,780	-12	11,940	11,160
Mountain Province.....	42	67	.....	.....	.....	1,920	7,010
Nueva Ecija.....	186	179	.....	.....	.....	1,310	720
Nueva Vizcaya.....	13	9	.....	.....	.....	1,060	830
Occidental Negros.....	338	528	87,040	73,450	+18	5,830	10,220
Oriental Negros.....	324	172	163,340	190,510	-14	4,480	6,660
Palawan.....	247	256	31,300	34,780	-10	9,970	9,920
Pampanga.....	35	41	.....	.....	.....	.....	.....
Pangasinan.....	1,252	1,344	55,410	52,050	+6	126,990	150,900
Rizal.....	14	5	.....	.....	.....	.....	.....
Romblon.....	107	111	102,670	104,000	-1	1,530	8,850
Samar.....	2,384	3,608	319,540	376,490	-15	24,350	55,230
Sorsogon.....	1,306	1,920	79,350	64,160	+24	49,180	12,800
Sulu.....	702	1,379	29,780	30,820	-3	45,760	75,320
Surigao.....	516	263	108,250	98,770	+9	19,840	8,450
Tarlac.....	223	231	510	400	+27	17,690	18,060
Tayabas.....	22,913	1,055	1,265,510	1,205,780	+5	33,460	34,240
Zambales.....	571	344	8,630	8,650	.....	51,380	55,880
Zamboanga.....	13,042	294	225,460	227,080	-1	44,920	35,820
Philippine Islands.....	110,678	45,588	5,726,800	6,119,150	-7	1,993,450	1,865,770

¹ 1 picul=63.25 kilos.

TABLE I.—Coconut—Average prices and total value, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average price per unit in the municipal markets								Total value	
	Tuba per liter		Nut per 100		Cepra per picul		Oil per liter		1925	1924
	1925	1924	1925	1924	1925	1924	1925	1924		
Abra.....			P9.26	P8.26			P0.45	P0.76	P5,310	P4,820
Agusan.....	P0.08	P0.08	5.14	5.41	P10.01	P9.94	.79	.90	493,010	335,250
Albay.....	.10	.08	3.84	3.89	11.69	10.66	.40	.34	2,286,480	2,043,170
Antique.....	.11	.09	8.99	2.68	10.96	10.32	.66	.53	377,460	313,770
Bataan.....			6.11	6.79					10,180	6,700
Batanes.....			6.19	2.88			.36	.32	6,390	1,080
Batanga.....			3.33	3.36	10.66	9.67	.35	.35	519,960	390,020
Bohol.....	.09	.08	2.71	2.90	10.43	9.01	.22	.28	2,435,220	2,404,620
Bulidnon.....	.05	.08	10.21	6.98	9.00	9.00			4,140	2,030
Bulacan.....			9.10	8.15					17,020	13,580
Cagayan.....			5.12	6.71			.71	1.00	77,450	84,380
Camarines Norte.....	.12	.20	3.42	3.01	10.78	8.91	.37	.33	1,114,720	671,130
Camarines Sur.....	.06	.06	3.35	2.95	10.05	7.78	.30	.21	1,676,140	1,215,320
Capiz.....	.08	.07	3.46	3.14	9.24	8.81	.41	.40	1,978,870	1,189,390
Cavite.....			2.76	3.40	11.88	11.19	.24	.18	291,720	153,470
Cebu.....	.07	.07	3.75	3.56	10.68	9.97	.28	.23	6,320,730	7,680,100
Cotabato.....	.21	.15	5.27	6.70	10.93	9.36	.73	.62	132,660	84,370
Davao.....	.13	.13	5.70	6.29	10.15	9.18	.87	.68	414,220	312,420
Iloco Norte.....			9.67	9.12			.60	.48	28,340	6,810
Iloco Sur.....			5.06	5.69	11.83	10.00	.78	.74	106,250	133,330
Iloilo.....	.08	.06	2.93	3.03	10.92	10.38	.67	.71	1,934,830	1,946,740
Isabela.....			7.78	6.67			.63	1.25	9,260	9,660
Laguna.....	.13	.02	2.53	2.16	11.29	9.97	.43	.59	11,593,040	12,583,930
Lanao.....	.07	.10	5.26	3.85	11.28	10.33	.40	.45	356,430	265,970
La Union.....			3.37	3.70	9.63	8.48	.65	.45	92,330	92,330
Leyte.....	.11	.10	3.07	2.93	10.81	9.23	.24	.23	3,405,620	3,282,610
Marinduque.....	.08	.08	3.44	3.23	10.06	8.34	.29	.28	1,636,710	1,476,230
Manobo.....	.07	.11	2.65	2.78	9.65	8.90	.40	.29	654,860	630,830
Mindoro.....	.05	.06	3.55	3.43	10.13	8.28	.21	.23	679,670	540,390
Misamis.....	.06	.05	3.44	2.97	10.03	9.19	.36	.37	6,019,420	5,239,490
Mountain Province.....			9.83	8.74			.50	.40	4,850	8,710
Nueva Ecija.....			11.73	9.70			.38	.57	22,310	17,760
Nueva Vizcaya.....			13.34	12.64			.47	.46	2,890	1,680
Occidental Negros.....	.03	.08	3.11	2.94	9.56	10.06	.34	.36	1,355,900	1,285,700
Oriental Negros.....	.10	.08	2.65	2.62	9.34	8.41	.39	.49	1,942,630	1,886,370
Palawan.....	.05	.05	3.33	3.94	9.34	9.66	.24	.23	333,660	379,610
Pampanga.....			7.32	8.06					2,670	2,670
Pangasinan.....	.10		4.17	4.18	10.12	9.58	.44	.43	669,770	607,440
Rizal.....			6.43	9.13					920	440
Romblon.....	.07	.07	2.61	2.84	11.12	10.93	.29	.16	1,243,980	1,251,550
Samar.....	.14	.14	3.92	4.06	9.33	8.84	.29	.30	3,486,920	3,955,680

Sorsogon.....	.12	.09	3.21	3.60	11.14	8.82	.25	.42	965,030	659,820
Sulu.....	.20		3.86	3.52	11.29	9.46	.37	.37	382,300	367,880
Surigao.....	.08	.07	2.85	2.57	10.88	8.77	.42	.36	1,349,720	1,016,740
Tarlac.....			5.14	5.55	10.14	6.50	.44	.41	24,500	22,850
Tayabas.....	.05	.05	3.64	3.44	10.28	8.96	.50	.51	13,021,690	10,916,960
Zambales.....	.10	.22	4.83	6.53	7.90	8.29	.41	.44	124,070	132,480
Zamboanga.....	.09	.10	4.03	4.01	10.54	10.78	.86	.38	3,045,640	2,540,560
Philippine Islands.....	.08	.07	3.48	3.57	10.47	9.39	.43	.41	71,847,580	68,134,370

TABLE J.—Abaca—Area cultivated, area productive and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Area cultivated		Increase or decrease	Area productive		Production		Increase or decrease
	1925	1924		1925	1924	1925	1924	
	Hectares	Hectares	Per cent	Hectares	Hectares	Piculs ¹	Piculs ¹	Per cent
Abra.....	10,020	10,120	— 1	7,840	7,840	75,690	64,720	+ 17
Agusan.....	79,100	78,060	+ 1	66,040	60,560	608,860	568,660	+ 11
Albay.....	860	860		670	540	1,420	1,360	+ 5
Antique.....	10	10		(*)		10		
Bataan.....	810	840	— 4	710	760	2,390	1,400	+ 67
Batanes.....	1,290	1,190	+ 1	720	680	4,190	5,140	+ 19
Batangas.....	6,680	5,640	+ 18	5,110	8,620	33,590	29,820	+ 13
Bohol.....								
Bukidnon.....								
Bulacan.....								
Capayan.....	10,070	11,760	— 9	8,400	10,070	66,040	64,970	+ 20
Comarines Norte.....	38,530	36,780	+ 5	33,090	30,170	269,020	215,720	+ 25
Comarines Sur.....	6,490	5,820	+ 10	5,310	4,240	34,320	35,390	— 2
Capi.....	4,440	4,770	— 7	4,280	4,650	20,030	24,050	+ 17
Cavite.....	3,370	3,330	— 1	2,590	2,610	26,420	26,560	+ 3
Cebu.....	580	630	+ 8	390	420	4,640	4,390	+ 4
Cotabato.....	43,260	41,630	+ 4	39,310	36,740	356,890	358,410	— 1
Davao.....								
Ilocos Norte.....								
Ilocos Sur.....	2,630	2,900	+ 1	1,370	1,580	15,470	12,580	+ 25
Iloilo.....								
Isabela.....	600	600	+ 8	570	480	7,560	5,120	+ 48
Laguna.....	1,460	1,380	+ 6	1,060	750	17,680	7,980	+ 121
Lanao.....								
La Union.....	96,760	108,940	— 11	69,880	79,980	649,640	806,140	— 32
Leyte.....	2,210	2,560	— 14	1,170	1,290	7,110	10,710	— 34
Mazindague.....	2,780	2,470	+ 12	2,100	2,260	14,520	19,310	— 25
Masbate.....	4,310	4,930	— 13	4,210	4,860	23,670	24,260	— 3
Mindoro.....								

¹ 1 picul—63.25 kilos.

* Less than 10 hectares.

TABLE J.—*Abaca—Area cultivated, area productive and production, by provinces, for the years ending June 30, 1924 and 1925—Continued*

Provinces	Area cultivated		Increase or decrease	Area productive		Production		Increase or decrease
	1925	1924		1925	1924	1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Hectares</i>	<i>Hectares</i>	<i>Piculs¹</i>	<i>Piculs¹</i>	<i>Per cent</i>
Misamis.....	9,570	9,040	+ 6	7,910	6,560	79,050	65,360	+ 21
Mountain Province.....								
Nueva Ecija.....								
Nueva Vizcaya.....								
Occidental Negros.....	2,880	2,850		1,760	1,610	6,220	6,080	+ 2
Oriental Negros.....	4,440	4,470	- 1	3,550	2,450	26,470	18,570	+ 42
Palawan.....	(²)	10		(²)	10	10	30	- 67
Pampanga.....								
Pangasinan.....								
Rizal.....		10						
Romblon.....	1,160	1,160		860	990	7,930	5,420	+ 46
Samar.....	42,210	45,460	- 7	32,230	35,230	295,880	296,570	- 31
Sorsogon.....	58,440	65,389	+ 5	46,080	41,210	379,840	258,270	+ 8
Sulu.....	10,360	9,980	+ 4	7,940	7,050	31,450	26,480	+ 19
Surigao.....	24,450	25,340	- 4	20,730	21,180	164,300	154,510	
Tarlac.....								
Tayabas.....	850	1,080	- 21	780	930	5,970	2,390	+ 146
Zambales.....								
Zamboanga.....	6,380	6,080	+ 5	4,710	2,800	22,790	16,320	+ 40
Philippine Islands.....	477,110	485,340	- 2	382,860	374,180	2,803,670	3,125,450	- 9

¹ 1 picul=63.25 kilos.² Less than 10 hectares.

TABLE XI.—*Abaca—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925*

Provinces	Average yield per hectare		Average price per picul in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Piculs	Piculs					Per cent
Abra.....							
Agusan.....	10	8	P22.01	P14.49	P1,666,660	P37,800	+ 77
Albay.....	7	9	21.72	13.42	10,943,960	7,629,620	+ 43
Antique.....	2	2	18.31	16.46	26,000	22,220	+ 17
Bataan.....							
Batanes.....	2		20.00		200		
Batangas.....	3	2	38.36	25.62	21,650	39,600	+151
Bobol.....	7	7	17.55	11.97	78,620	61,620	+ 19
Bukidnon.....	6	8	14.27	16.76	479,190	499,430	- 4
Bulacan.....							
Cagayan.....							
Camarines Norte.....	8	5	29.84	17.01	1,971,020	935,060	+111
Camarines Sur.....	8	7	19.26	12.34	6,161,420	2,662,060	+ 94
Capiz.....	6	8	39.77	15.60	1,065,210	559,360	+ 90
Caraga.....	5	6	40.25	29.11	896,270	700,070	+ 15
Cebu.....	10	10	25.72	16.49	679,440	420,480	+ 61
Cotabato.....	12	10	29.67	19.10	134,700	83,840	+ 61
Davao.....	9	10	27.06	16.47	9,645,410	5,646,880	+ 74
Ilocos Norte.....							
Ilocos Sur.....							
Iloilo.....	11	9	25.77	17.81	898,660	320,530	+ 81
Isuba.....							
Laguna.....	13	11	33.48	31.79	233,100	162,760	+ 55
Lanao.....	17	11	17.38	9.80	397,230	73,180	+208
La Union.....							
Leyte.....	8	10	20.26	12.23	11,133,740	9,886,160	+ 13
Marinduque.....	6	8	32.27	19.03	229,430	204,340	+ 12
Masbate.....	7	8	13.95	12.82	262,600	247,630	- 18
Mindoro.....	6	5	30.69	15.34	724,080	372,180	+ 94
Misamis.....	10	10	16.35	12.63	1,292,600	828,630	+ 56
Mountain Province.....							
Nueva Ecija.....							
Nueva Vizcaya.....							
Occidental Negros.....	3	3	18.76	15.86	116,310	96,460	+ 20
Oriental Negros.....	7	7	18.49	9.53	489,430	176,980	+176
Palawan.....	3	3	10.00	10.67	100	320	- 69
Pampanga.....							
Pangasinan.....							
Rizal.....							
Romblon.....	9	5	28.24	17.39	220,590	94,240	+138
Samar.....	6	6	22.28	14.89	4,586,790	4,415,230	+ 4
Sorsogon.....	6	6	27.80	16.00	7,779,830	3,873,760	+101
Sulu.....	4	4	15.61	16.63	487,700	438,850	+ 18
Surigao.....	7	7	18.50	11.94	2,867,840	1,845,160	+ 56
Tarlac.....							
Tayabas.....	7	2	11.37	16.87	66,740	40,320	+ 65
Zambales.....							
Zamboanga.....	5	6	17.08	8.31	339,380	106,570	+187
Philippine Islands..	7	8	22.53	13.82	64,296,240	43,186,250	+ 49

* Revised.

TABLE XII.—Corn—Area cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Area cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Cavans¹</i>	<i>Cavans¹</i>	<i>Per cent</i>
Abra.....	14,210	15,750	-10	185,310	168,110	+12
Agusan.....	3,670	3,520	+4	57,050	61,130	-7
Albay.....	1,750	2,360	-26	20,510	22,040	-7
Antique.....	4,470	4,060	+10	52,660	48,090	+10
Bataan.....	530	630	-16	4,840	5,840	-17
Batanes.....	150	160	-6	1,380	2,050	-33
Batangas.....	13,370	17,590	+4	189,870	142,640	+34
Bohol.....	21,940	20,890	+5	263,790	262,890	.....
Bukidnon.....	4,480	3,480	+29	52,620	20,820	+76
Bulacan.....	4,340	4,490	-3	35,830	65,820	-46
Cagayan.....	22,750	23,730	-4	509,290	439,900	+16
Camarines Norte.....	230	180	+22	2,800	2,830	-1
Camarines Sur.....	870	1,000	-13	11,880	9,550	+24
Capiz.....	4,620	3,060	+31	45,410	40,660	+12
Cavite.....	0,630	2,690	+13	10,240	11,260	+71
Cebu.....	155,940	162,020	-4	2,436,620	2,922,060	-17
Datagan.....	4,800	4,250	+13	118,720	33,270	+43
Davao.....	2,740	2,210	+24	36,930	24,620	+46
Ilocos Norte.....	7,600	6,360	+18	109,470	112,000	-3
Ilocos Sur.....	8,180	7,100	+15	132,020	134,060	-2
Iloilo.....	13,690	13,740	-1	118,180	111,900	+6
Isabela.....	33,160	33,170	-1	599,490	479,870	+23
Laguna.....	1,620	1,500	+15	13,210	21,090	-37
Lanao.....	4,930	5,550	-11	105,440	126,500	-16
La Union.....	7,010	7,660	-8	90,660	39,910	+9
Leyte.....	34,650	33,770	+3	496,940	444,990	+12
Marinduque.....	230	310	-26	2,530	3,700	-21
Masbate.....	2,030	4,010	-37	37,130	64,600	-32
Mindoro.....	2,190	2,310	-6	24,830	23,550	+5
Misamis.....	20,890	21,570	-3	340,560	354,330	-4
Mountain Province.....	2,640	2,130	+4	20,420	23,870	-14
Nueva Ecija.....	6,860	9,970	-30	79,640	69,360	+32
Nueva Vizcaya.....	400	590	-32	6,760	9,790	-41
Occidental Negros.....	20,480	28,470	-28	332,400	468,630	-31
Oriental Negros.....	40,310	38,730	+4	528,310	445,640	+17
Palawan.....	950	880	+3	7,260	9,710	-25
Pampanga.....	8,750	6,970	+3	35,900	60,690	-39
Pangasinan.....	14,770	14,040	+5	210,320	187,060	+12
Rizal.....	1,060	920	+15	10,530	8,180	+29
Romblon.....	3,160	1,700	+86	36,190	11,240	+222
Samar.....	2,280	2,350	-3	26,050	25,320	+3
Sorsogon.....	3,220	2,910	+13	31,500	27,410	+19
Sulu.....	750	710	+6	7,340	6,930	+6
Surigao.....	5,140	4,670	+10	59,140	48,390	+22
Tarlac.....	3,210	2,460	+30	48,630	33,960	+43
Taybas.....	3,680	3,690	-1	30,120	32,770	-8
Zambales.....	490	410	+20	7,710	5,470	+44
Zamboanga.....	2,690	2,710	-23	31,170	53,950	-42
Philippine Islands.....	522,580	533,230	-2	7,606,110	7,830,320	-3

¹ 1 cavan of shelled corn=75 liters or 68.5 kilos.

TABLE XIII.—Corn—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average production per hectare		Average price per cavan in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
Abra.....	Caravan	Caravan					Per cent
Aguañon.....	13	10	P5.00	P5.00	P221,050	P643,610	+ 43
Albay.....	16	17	4.40	3.80	263,280	239,210	+ 10
Antique.....	12	9	4.10	4.70	84,660	103,160	- 18
Bataan.....	12	12	3.10	4.60	162,970	222,960	- 27
	9	9	3.80	5.10	18,540	29,580	- 37
Batanes.....	9	13	5.60	5.60	6,920	10,220	- 32
Batangas.....	10	8	4.30	3.80	814,820	543,860	+ 50
Bohol.....	12	13	4.20	4.50	1,116,870	1,171,660	- 5
Bukidnon.....	12	9	3.70	4.80	193,490	142,680	+ 36
Bulacan.....	8	15	4.60	4.80	166,270	318,420	- 48
Cagayan.....	22	19	3.30	4.40	1,704,930	1,923,120	- 11
Camagines Norte.....	13	10	3.80	3.00	10,780	9,230	+ 17
Camagines Sur.....	14	9	3.20	3.30	43,300	31,430	+ 38
Capiz.....	11	13	3.40	3.10	153,240	127,510	+ 20
Cavite.....	6	4	4.90	3.90	76,620	44,500	+ 72
Cebu.....	16	18	4.40	4.40	10,835,930	12,944,490	- 16
Cotabato.....	25	20	3.30	3.40	387,320	284,880	+ 36
Davao.....	13	11	3.40	3.80	122,240	84,180	+ 30
Ilocos Norte.....	15	18	4.30	4.40	472,320	494,170	- 4
Ilocos Sur.....	16	19	4.50	5.90	594,690	671,690	- 12
Iloilo.....	9	8	3.80	4.10	460,700	456,450	- 1
Isabela.....	18	14	3.30	3.70	1,965,930	1,785,980	+ 11
Laguna.....	13	18	4.50	3.80	59,160	89,860	- 26
Laos.....	22	23	3.00	4.20	412,420	539,940	- 22
La Union.....	13	18	4.10	6.20	372,640	629,290	- 40
Leyte.....	14	13	4.10	3.90	2,031,150	1,738,840	+ 17
Marinduque.....	13	12	2.90	2.70	6,460	10,020	- 16
Masbate.....	13	14	3.10	3.60	113,760	194,710	- 42
Mindoro.....	11	10	3.00	3.10	76,260	74,070	+ 2
Misamis.....	16	16	3.60	3.70	1,229,730	1,502,780	- 6
Mountain Province.....	10	11	3.90	4.10	89,390	98,810	- 19
Nueva Ecija.....	11	6	4.20	4.40	333,310	267,880	+ 24
Nueva Vizcaya.....	14	17	5.90	4.40	28,800	42,760	- 33
Occidental Negros.....	16	16	4.20	4.80	1,343,190	2,279,650	- 41
Oriental Negros.....	13	12	3.80	4.50	2,027,730	1,923,820	+ 5
Palawan.....	8	10	4.90	5.20	35,850	50,890	- 30
Pampanga.....	5	9	3.80	3.50	139,880	239,580	- 42
Pangasinan.....	14	13	4.10	3.60	863,000	678,380	+ 27
Rizal.....	19	9	4.60	4.80	48,410	39,010	+ 24
Romblon.....	11	7	3.30	2.50	118,810	23,440	+ 319
Samar.....	11	11	4.10	3.80	109,060	95,230	+ 15
Sorsogon.....	10	9	3.10	3.70	99,010	103,970	- 3
Sulu.....	10	10	4.10	4.60	30,320	31,340	- 3
Surigao.....	12	10	2.90	2.80	172,650	135,250	+ 28
Tarlac.....	15	14	4.00	4.30	192,030	147,630	+ 30
Tayabas.....	8	9	4.80	4.40	145,520	142,430	+ 1
Zambales.....	16	13	4.10	3.40	31,590	18,620	+ 71
Zamboanga.....	15	20	3.80	3.30	117,790	178,290	- 34
Philippine Islands.....	15	14	4.00	4.20	30,767,250	32,503,960	- 8

* 1 cavan of shelled corn=75 liters or 58.5 kilos.

TABLE XIV.—Tobacco—Area cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Area cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Quintals</i>	<i>Quintals</i>	<i>Per cent</i>
Abra.....	1,350	1,760	- 23	14,120	15,360	- 8
Agusan.....	390	285	+ 37	3,510	3,110	+ 13
Albay.....	.....	.....	.....	.....	.....	.....
Antique.....	200	245	- 18	1,110	1,330	- 17
Bataan.....	.....	.....	.....	.....	.....	.....
Batanes.....	20	20	.....	120	100	+ 20
Batangas.....	120	120	.....	770	650	+ 18
Bohol.....	460	465	- 1	4,950	5,710	- 13
Bukidnon.....	120	90	+ 33	1,310	960	+ 38
Butuan.....	70	65	+ 8	560	280	+ 28
Cagayan.....	13,280	12,695	+ 5	183,330	193,780	- 8
Camarines Norte.....	.....	.....	.....	.....	.....	.....
Camarines Sur.....	10	.....	.....	30	.....	.....
Capiz.....	160	170	- 12	1,090	1,330	- 18
Cavite.....	60	80	+100	530	420	+ 26
Cebu.....	4,620	6,160	- 25	83,630	110,130	- 24
Cotabato.....	170	160	+ 70	2,090	1,390	+ 60
Davao.....	100	100	.....	900	850	+ 6
Ilocos Norte.....	3,890	2,845	+ 37	44,710	36,060	+ 24
Ilocos Sur.....	1,160	1,235	- 6	10,430	10,380	.....
Iloilo.....	2,340	2,550	- 8	17,100	22,320	- 23
Isabela.....	15,080	17,375	- 13	152,900	201,010	- 25
Laguna.....	.....	.....	.....	.....	.....	.....
Lanao.....	340	285	+ 19	2,630	3,210	- 18
La Union.....	7,980	7,060	+ 13	115,070	108,320	+ 6
Leyte.....	1,730	2,005	- 14	18,730	18,140	+ 3
Marinduque.....	80	90	- 11	650	630	+ 3
Masbate.....	210	180	+ 17	1,780	1,630	+ 9
Mindoro.....	30	40	- 25	370	400	- 8
Misamis.....	130	125	+ 4	1,270	1,610	- 21
Mountain Province.....	1,250	1,405	- 11	7,800	8,970	- 13
Nueva Ecija.....	1,440	1,180	+ 21	11,160	9,790	+ 14
Nueva Vizcaya.....	360	170	+ 76	3,680	2,640	+ 75
Occidental Negros.....	790	1,060	- 26	15,680	19,530	- 21
Oriental Negros.....	1,480	860	+ 74	16,670	10,860	+ 53
Palawan.....	60	25	+140	640	360	+ 78
Pampanga.....	.....	.....	.....	.....	.....	.....
Pangasinan.....	9,570	8,990	+ 6	129,960	126,610	+ 3
Rizal.....	50	10	+200	130	50	+160
Romblon.....	200	275	- 16	1,460	2,160	- 33
Samar.....	330	500	- 34	2,280	4,080	- 45
Sorsogon.....	10	10	.....	70	60	+ 17
Sulu.....	230	35	+567	2,330	370	+600
Surigao.....	290	340	- 15	3,340	2,840	+ 18
Tarlac.....	1,240	916	+ 35	11,090	7,540	+ 47
Tuyabas.....	60	30	+100	280	410	- 32
Zambales.....	130	135	- 4	1,190	1,060	+ 6
Zamboanga.....	100	75	+ 33	690	630	+ 51
Philippine Islands.....	71,630	72,000	- 1	910,910	941,800	- 3

1 quintal=46 kilos.

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TABLE XV.—Tobacco—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per hectare		Average price per quintal		Total value		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Quintals	Quintals					Per cent
Abra.....	10	9	P6.51	P7.60	P33,350	P134,789	- 20
Agusan.....	9	11	16.69	12.46	55,580	38,729	+ 51
Antique.....	5	5	17.18	10.95	19,070	14,650	+ 31
Bataan.....							
Batanes.....	6	5	11.08	9.30	1,330	930	+ 43
Batangas.....	6	5	17.08	13.43	13,140	8,730	+ 69
Bohol.....	11	12	12.29	11.28	60,850	64,440	- 6
Bukidnon.....	11	10	14.05	16.48	18,410	18,660	+ 17
Bulacan.....	5	4	11.55	8.64	4,160	2,420	+ 72
Cagayan.....	14	15	13.58	9.70	2,490,290	1,537,400	+ 28
Camarines Norte.....	3		9.33		280		
Camarines Sur.....	7	8	17.12	17.62	18,660	23,430	- 20
Capiz.....	9	14	9.28	14.40	4,920	6,050	- 19
Cavite.....							
Cebu.....	18	18	7.98	6.19	657,920	682,000	- 2
Colabato.....	12	14	11.27	8.85	23,550	12,300	+ 91
Davao.....	9	8	15.08	17.85	13,670	15,200	- 11
Ilocos Norte.....	11	13	6.64	7.94	296,550	264,420	+ 17
Ilocos Sur.....	9	8	8.35	8.12	87,140	84,250	+ 3
Iloilo.....	7	9	16.50	18.35	262,210	409,580	- 31
Isabela.....	13	11	19.37	16.20	3,719,010	3,053,900	+ 22
Laguna.....							
Lanao.....	8	11	17.14	29.15	45,070	64,580	- 30
La Union.....	14	15	10.03	15.88	1,154,490	1,720,210	- 33
Leyte.....	11	9	24.83	27.33	465,040	495,510	- 6
Marinduque.....	8	7	8.05	8.00	5,230	5,040	+ 4
Masbate.....	8	9	11.05	14.12	19,550	23,010	- 15
Mindoro.....	12	10	17.00	15.62	6,290	6,260	+ 1
Misamis.....	10	13	24.93	28.32	30,520	45,690	- 33
Mountain Province.....	6	6	12.45	9.23	97,140	83,060	+ 17
Nueva Ecija.....	8	8	11.10	13.13	123,910	128,550	- 4
Nueva Vizcaya.....	12	12	20.36	18.09	72,880	36,910	+ 97
Occidental Negros.....	20	19	7.54	7.79	118,250	155,360	- 24
Oriental Negros.....	11	13	8.57	10.51	142,910	114,120	+ 25
Palawan.....	11	14	11.84	15.00	7,580	5,400	+ 40
Pampanga.....							
Pangasinan.....	13	14	10.51	12.24	1,364,790	1,537,800	- 11
Rizal.....	4	5	15.85	17.60	2,060	580	+ 134
Romblon.....	6	8	9.49	12.75	13,760	27,620	- 50
Samar.....	7	8	23.40	21.31	52,660	86,950	- 40
Sarangani.....	7	6	16.00	23.50	1,120	1,410	- 21
Sulu.....	10	10	10.51	9.49	24,600	5,510	+ 598
Surigao.....	11	8	30.66	27.82	102,400	78,030	+ 30
Tarlac.....	9	8	11.71	13.15	129,890	99,180	+ 31
Taybas.....	5	14	23.21	36.19	6,500	14,840	- 56
Zambales.....	5	8	18.07	19.56	19,850	20,640	- 3
Zamboanga.....	6	7	13.32	13.79	10,660	7,310	+ 46
Philippine Islands.....	13	13	13.05	12.22	11,891,690	11,505,420	+ 3

TABLE XVI.—*Maguacay—Area cultivated, area productive, and production, by provinces, for the years ending June 30, 1924 and 1925*

Provinces	Area cultivated		Increase or decrease	Area productive		Production		Increase or decrease
	1925	1924		1925	1924	1925	1924	
	Hectares	Hectares		Hectares	Hectares	Piculs ¹	Piculs ¹	
Abram.....	20	10						
Agusan.....								
Albay.....								
Antique.....	50	50		40	40	100	40	+150
Bataan.....								
Batanes.....								
Batangas.....								
Bohol.....	2,740	2,775	— 1	2,390	2,695	32,420	30,330	+ 7
Bulacan.....								
Bulacan.....	(²)	(²)						
Cagayan.....	10	10		5	5	10	20	— 50
Camarines Norte.....								
Camarines Sur.....								
Capias.....	6	5						
Cavite.....								
Cebu.....	11,655	12,280	— 5	10,140	10,765	261,990	269,945	— 8
Cotabato.....								
Davao.....								
Ilocos Norte.....	6,620	6,885	+ 11	4,495	5,045	26,200	23,945	+ 9
Ilocos Sur.....	5,950	6,375	+ 11	5,560	5,010	105,330	97,950	+ 6
Iloilo.....	15	15		10		(³)		
Islaola.....								
Laguna.....								
Lanao.....								
La Union.....	280	285	+ 2	60	270	70	125	— 44
Leyte.....	920	895	+ 3	590	505	1,320	900	+ 47
Marinduque.....	(²)	(²)						
Marbato.....	125	160	+ 25	40		530		
Mindoro.....								
Misamis.....								
Mountain Provinces.....	15	10	+ 50	10	10	20	50	— 60
Nueva Ecija.....	10	5	+100					
Nueva Vizcaya.....								
Occidental Negros.....	55	35	+ 57	30	25	710	540	+ 31
Oriental Negros.....	400	205	+ 95	370	165	11,730	4,955	+135
Palaos.....								
Pampanga.....								
Pangasinan.....	2,170	1,375	+ 70	1,140	940	16,480	18,165	+ 26
Rizal.....	10	10						
Romblon.....								
Samar.....								
Sorsogon.....								
Sulu.....	5	10	— 50		10		6	
Surigao.....								
Tarlac.....	5	5		(²)	6	10	25	— 50
Tayabas.....								
Zambales.....	130	140	— 7	110	130	1,680	1,905	+ 7
Zamboanga.....								
Philippine Islands.....	31,100	22,380	+ 6	24,900	25,620	456,000	443,010	+ 3

¹ 1 picul=63.25 kilos.² Less than 5 hectares.³ Less than 10 piculs.

TABLE XVII.—*Magney—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925.*

Provinces	Average yield per hectare		Average price per picul in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Piculs	Piculs					Per cent
Abra.....							
Agusan.....							
Albay.....							
Antique.....	2	1	P14.00	P14.75	P1,400	P600	+137
Bataan.....							
Batanes.....							
Batangas.....							
Bohol.....	10	11	12.05	6.91	300,750	209,760	+86
Bukidnon.....							
Bulacan.....							
Cagayan.....	2	4	6.00	6.00	60	160	-40
Camagines Norte.....							
Camagines Sur.....							
Capi.....							
Cavite.....							
Cebu.....	26	28	13.29	8.63	3,483,380	2,329,140	+49
Cotabato.....							
Davao.....							
Ilocos Norte.....	6	6	9.95	8.21	261,720	197,090	+33
Ilocos Sur.....	18	19	11.64	7.68	1,202,400	752,130	+60
Iloilo.....			16.00		30		
Ivabela.....							
Laguna.....							
Laos.....							
La Union.....	1		5.69	4.95	310	620	-44
Leyte.....	3	2	11.12	8.02	14,080	7,220	+103
Marinduque.....							
Masbate.....	13		7.62		3,720		
Mindoro.....							
Misamis.....							
Mountain Province.....	2	5	6.00	5.40	120	270	-65
Nueva Ecija.....							
Nueva Vizcaya.....							
Occidental Negros.....	24	22	12.80	6.46	9,180	3,490	+162
Oriental Negros.....	32	30	11.74	9.11	137,730	45,600	+203
Palawan.....							
Pampanga.....							
Pangasinan.....	14	14	10.27	7.39	160,310	95,810	+75
Ribal.....							
Ronablon.....							
Samar.....							
Sorsogon.....							
Sulu.....				4.00		20	
Surigao.....							
Tarlac.....	10	5	12.00	10.80	120	270	-86
Tayabas.....							
Zamboanga.....	10	8	7.61	6.10	7,570	6,130	+23
Zamboanga.....							
Philippine Islands..	18	17	12.45	8.24	5,582,530	3,549,140	+56

TABLE XVIII.—Cacao—Trees cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Trees cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	Number	Number	Per cent	Kilos	Kilos	Per cent
Abra.....	1,200	1,200	—	500	900	—
Agusan.....	65,000	87,800	-25	29,700	32,100	-10
Albay.....	65,600	64,800	+1	33,100	32,500	+2
Antique.....	39,900	39,000	+2	12,800	12,000	+2
Bataan.....	8,900	8,800	+1	2,600	2,100	+5
Batanes.....	—	—	—	—	—	—
Batangas.....	71,300	70,300	+1	22,000	24,800	-11
Bohol.....	151,400	146,600	+3	56,800	56,600	—
Bukidnon.....	87,800	77,800	+13	52,200	34,100	+53
Bulacan.....	7,600	6,500	+35	2,500	4,300	-42
Cagayan.....	22,200	20,600	+8	6,200	5,600	+11
Camarines Norte.....	16,100	16,000	-6	12,900	11,000	+9
Camarines Sur.....	72,600	70,200	+3	48,500	65,500	-25
Capiz.....	12,200	24,200	-50	4,400	6,600	-32
Cavite.....	150,000	149,600	—	100,600	105,700	-5
Cebu.....	116,300	100,300	+7	189,900	119,900	+18
Colabato.....	3,400	3,200	+6	1,300	1,000	+30
Davao.....	3,900	4,900	-21	2,400	2,500	-4
Ilocos Norte.....	18,600	19,300	-4	4,100	4,000	+2
Ilocos Sur.....	6,800	9,800	-31	3,400	5,400	-37
Iloilo.....	92,500	89,300	+3	61,400	50,100	+2
Isabela.....	14,800	24,500	-40	6,800	6,300	+28
Laguna.....	23,800	26,600	-11	30,700	35,700	-14
Lanao.....	6,000	7,900	-24	2,500	5,900	-68
La Union.....	91,800	89,100	+3	102,500	97,700	+5
Leyte.....	107,800	107,200	—	34,300	68,400	-50
Marikduque.....	9,600	7,800	+23	3,900	2,800	+69
Marbato.....	1,600	2,500	-35	1,000	1,600	-67
Mindoro.....	63,200	55,700	+11	21,000	22,300	-6
Misamis.....	29,900	35,300	-15	16,500	19,400	-15
Mountain Province.....	19,300	20,400	-5	9,000	9,100	-1
Nueva Ecija.....	12,800	13,100	-2	13,300	13,700	-3
Nueva Vizcaya.....	18,500	12,800	+44	3,100	3,200	-3
Occidental Negros.....	53,700	56,200	-3	45,000	48,600	-8
Oriental Negros.....	185,300	164,800	+12	68,300	63,000	+9
Palawan.....	7,400	7,400	—	6,200	5,700	+9
Pampanga.....	5,600	11,700	-52	5,700	7,100	-20
Pangasinan.....	86,600	90,300	-4	45,500	49,600	-35
Rizal.....	9,300	8,200	+13	2,900	3,400	-15
Romblon.....	4,900	5,700	-14	1,600	1,600	—
Samar.....	70,200	62,800	+12	23,800	28,900	-18
Sorsogon.....	17,700	17,200	+3	5,400	9,700	-44
Sulu.....	500	300	+67	300	—	+300
Surigao.....	51,300	39,900	+28	28,100	23,800	+18
Tarlac.....	3,700	4,800	-23	3,100	7,300	-58
Taybas.....	87,800	74,200	+18	46,600	30,100	+54
Zarabales.....	5,400	5,900	-9	2,900	3,600	-20
Zamboanga.....	8,400	9,000	-7	4,700	4,300	+9
Philippine Islands.....	2,009,300	1,969,400	+1	1,111,900	1,100,800	+4

TABLE XIX.—Cacao—Average yield per tree, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per tree		Average price per kilo in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Kilos	Kilos					Per cent
Abra.....	1.60	1.60	P1.22	P1.10	P1,100	P1,000	+ 10
Agusan.....	1.94	.82	.90	.80	26,700	27,300	+ 2
Albay.....	1.14	1.15	.69	.70	23,000	22,200	+ 4
Antique.....	.93	.88	1.35	1.20	16,600	23,400	- 29
Bataan.....	1.06	1.05	1.35	1.30	2,700	2,800	- 4
Batanes.....							
Batangas.....	1.00	1.00	1.10	1.10	26,100	28,400	- 8
Bohol.....	.62	.62	.93	.97	52,700	54,900	- 4
Bukidnon.....	.89	.90	.46	.47	24,000	18,000	+ 60
Bulacan.....	1.00	1.85	1.48	.95	3,700	4,100	- 10
Cagayan.....	1.07	1.02	.74	.86	4,600	4,800	- 4
Camarines Norte.....	1.12	1.07	.80	.77	9,600	8,500	+ 13
Camarines Sur.....	1.04	1.14	.99	1.00	46,500	60,600	- 25
Capiz.....	.72	.83	1.07	.97	4,700	6,300	- 25
Cavite.....	1.10	1.49	1.33	1.13	133,800	120,600	+ 11
Cebu.....	1.90	1.83	.96	.83	126,700	103,300	+ 23
Colabato.....	1.80	1.11	1.31	1.90	1,700	1,900	- 11
Davao.....	1.20	1.25	1.00	3.00	2,400	2,500	- 4
Iloos Norte.....	.84	1.43	1.00	1.00	4,200	4,000	+ 6
Iloos Sur.....	.81	.87	.70	.89	2,400	4,800	- 50
Iloilo.....	.99	1.00	1.22	1.15	63,000	57,600	+ 9
Isabela.....	.93	.78	.87	.87	5,900	4,600	+ 28
Laguna.....	2.74	1.74	1.13	1.21	34,700	43,100	- 20
Lanao.....	.46	1.02	.92	.95	2,300	5,600	- 59
La Union.....	1.62	1.68	1.40	1.31	143,600	128,600	+ 11
Leyte.....	.91	1.07	1.07	1.00	36,700	68,400	- 46
Marinduque.....	.76	.79	1.00	1.00	3,900	2,300	+ 69
Marikato.....	1.00	1.00	1.20	1.00	1,200	1,600	- 20
Mindoro.....	.64	.62	1.18	1.09	24,700	24,400	+ 1
Misamis.....	1.13	1.39	1.10	.96	18,100	18,600	- 3
Mountain Province.....	.87	.87	.87	.88	7,800	8,000	- 3
Nueva Ecija.....	1.82	2.04	1.01	1.01	13,500	13,800	- 2
Nueva Vizcaya.....	1.08	1.33	1.13	1.00	3,500	3,500	.....
Ocidental Negros.....	1.00	1.09	1.07	.98	48,200	47,400	+ 2
Oriental Negros.....	.60	.61	.95	.94	66,400	69,100	+ 11
Palaawan.....	1.03	.97	1.14	1.23	7,100	7,000	+ 1
Pampanga.....	1.39	1.16	1.02	1.24	5,800	8,900	- 35
Pangasinan.....	.93	1.27	1.39	1.36	63,400	94,500	- 33
Rizal.....	.69	.81	.90	1.03	2,600	3,500	- 26
Romblon.....	.64	.64	1.19	1.06	1,900	1,700	+ 12
Samar.....	.69	1.02	.81	.87	19,400	25,200	- 23
Sorsogon.....	.57	1.45	1.13	.96	6,100	9,300	- 35
Sulu.....	1.60	.....	.33	.....	100	.....	+ 100
Surigao.....	.87	1.06	.94	.89	20,400	21,100	+ 25
Tarlac.....	1.19	1.57	.84	.05	2,600	6,000	- 62
Taybas.....	.77	.62	1.27	1.03	85,000	30,800	+ 91
Zamboanga.....	1.00	1.24	1.07	1.58	3,100	5,700	- 46
Zamboanga.....	1.42	2.08	.89	.72	4,200	3,100	+ 35
Philippine Islands..	.99	1.08	1.07	1.04	1,189,100	1,206,600	- 2

TABLE XX.—Coffee—trees cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Trees cultivated		Increase or Decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	Number	Number	Per cent	Kilos	Kilos	Per cent
Abra.....	12,500	12,100	+ 3	7,300	6,500	+ 10
Agusan.....	19,400	20,300	- 5	4,600	2,400	+ 66
Albay.....	10,600	11,900	-11	2,600	1,200	+ 68
Antique.....	10,800	19,000	+ 4	4,300	4,700	- 9
Bataan.....	3,500	4,300	-19	900	800	+ 12
Batanes.....	100	100	.....	.....	.....	.....
Batangas.....	320,200	307,100	+ 6	185,900	189,000	- 2
Bohol.....	68,800	65,600	+ 5	14,000	11,800	+ 23
Bulidnon.....	54,600	65,200	-17	38,100	40,600	- 6
Bulacan.....	4,400	4,100	+ 7	1,200	1,300	- 8
Cagayan.....	21,400	18,500	+19	4,500	9,400	- 63
Camarines Norte.....	.....	100	.....	.....	.....	.....
Camarines Sur.....	11,600	10,500	+ 5	7,400	5,300	+ 39
Capiz.....	19,800	20,600	- 4	4,400	3,800	+ 15
Cavite.....	234,700	214,200	+ 9	217,400	212,800	+ 2
Cebu.....	23,700	21,200	+11	15,800	14,400	+ 10
Cotabato.....	1,100	900	+22	700	600	+ 16
Davao.....	8,100	8,000	+ 1	4,800	4,600	+ 4
Iloco Norte.....	41,300	39,600	+ 5	13,200	12,200	+ 8
Iloco Sur.....	37,900	38,700	- 2	24,800	25,500	- 3
Iloilo.....	284,800	264,500	+ 7	105,100	91,900	+ 14
Isabela.....	12,600	11,000	+19	8,200	7,300	+ 12
Laguna.....	15,600	15,500	+ 1	4,800	4,700	+ 2
Lanao.....	50,300	74,500	-33	35,400	45,100	-21
La Union.....	81,300	75,800	+ 7	75,600	78,100	- 4
Leyte.....	10,800	10,500	.....	5,800	6,200	- 7
Marinduque.....	21,000	17,700	+18	13,500	14,200	- 5
Masbate.....	200	200	.....	100	100	.....
Mindoro.....	53,600	49,000	+ 8	18,800	17,600	+ 6
Misamis.....	6,300	9,400	-33	6,400	5,700	+ 12
Mountain Province.....	431,700	422,600	+ 2	120,400	115,000	+ 4
Nueva Ecija.....	25,700	25,600	- 2	13,700	14,900	- 8
Nueva Visaya.....	25,800	21,600	+23	6,000	5,500	+ 9
Occidental Negros.....	12,700	8,900	+43	5,900	4,700	+ 25
Oriental Negros.....	170,000	163,400	+ 1	130,100	143,500	- 9
Palawan.....	7,200	7,200	.....	4,400	4,200	+ 4
Pampanga.....	400	400	.....	300	300	.....
Pangasinan.....	111,700	104,900	+ 6	44,800	42,000	+ 6
Rizal.....	5,300	5,100	+ 4	1,700	1,800	- 11
Romblon.....	1,900	1,800	+ 5	500	400	+ 25
Samar.....	9,600	10,600	-11	2,400	3,000	- 20
Sorsogon.....	9,000	8,100	+22	3,400	3,000	+ 13
Sulu.....	800	800	+12	700	500	+ 40
Surigao.....	3,400	3,300	+ 3	1,600	800	+ 25
Tarlac.....	6,300	6,600	+12	2,200	2,000	+ 10
Tayabas.....	25,700	24,200	+ 6	8,700	4,500	+ 26
Zambales.....	7,000	6,800	+ 3	1,600	1,700	- 6
Zamboanga.....	24,200	22,000	+10	7,400	6,900	- 6
Philippine Islands.....	2,035,600	2,259,400	+ 3	1,178,200	1,179,600	.....

TABLE XXI.—Coffee—Average yield per tree, average price and total value, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per hectare		Average price per kilo		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Kilos	Kilos	P. 42	P. 41			Percent
Abra.....	1.28	1.08					+ 7
Agusan.....	.38	.22	.69	.62	12,100	12,900	+ 33
Albay.....	.48	.31	.95	.75	2,600	1,600	+111
Antique.....	.48	.06	1.21	1.02	1,800	500	+ 8
Batanes.....	.64	.57	1.00	1.00	5,200	4,800	+ 12
Batangas.....					900	800	
Bohol.....	.84	1.30	.43	.46	30,500	34,600	- 5
Bukidnon.....	.42	.35	.78	.80	11,100	9,400	+ 19
Bulacan.....	1.10	1.12	.62	.89	19,700	15,800	+ 24
	.70	.72	1.17	1.23	1,400	1,600	- 13
Cagayan.....	.68	1.22	1.05	.71	4,900	6,700	- 27
Camarines Norte.....							
Camarines Sur.....	1.72	.77	.66	.77	4,200	4,100	+ 19
Capiz.....	.81	.69	.64	.65	2,800	2,500	+ 12
Cavite.....	1.47	1.57	.89	.88	190,600	187,300	+ 3
Cebu.....	.55	.87	.68	.62	16,700	9,000	+ 18
Cotabato.....	1.17	1.00	.57	.67	400	400	
Davao.....	1.03	.98	.38	1.00	4,700	4,600	+ 2
Iloilo Norte.....	.70	.60	.95	1.01	12,600	12,300	+ 2
Iloilo Sur.....	.95	1.02	.92	.87	22,900	22,100	+ 3
Iloilo.....	.90	.85	.76	.77	79,900	70,900	+ 12
Isabela.....	1.14	1.30	.88	.67	7,200	4,900	+ 47
Laguna.....	.60	.61	1.00	1.02	4,800	4,800	
Lanao.....	.90	.74	.67	.66	24,300	39,600	- 19
La Union.....	1.16	1.28	.97	.97	73,100	75,700	- 4
Leyte.....	.33	1.03	.86	.78	5,000	4,700	+ 6
Marinduque.....	.39	1.01	.49	.42	6,600	6,000	+ 10
Masbate.....	.50	.50	1.00	1.00	100	100	
Mindoro.....	.62	.66	.84	.85	16,800	14,600	+ 8
Misamis.....	1.42	1.06	1.01	1.09	6,500	6,200	+ 4
Mountain Province.....	.45	.48	.61	.65	61,400	63,000	- 1
Nueva Ecija.....	.77	.79	.69	.64	9,600	9,600	
Nueva Vizcaya.....	.62	.68	.78	.78	4,700	4,300	+ 9
Occidental Negros.....	.88	.81	.71	.72	4,200	3,400	+ 23
Oriental Negros.....	2.62	2.04	.72	.60	93,700	86,100	+ 8
Palawan.....	1.10	1.14	.98	1.00	4,300	4,200	+ 2
Pampanga.....	1.60	1.50	1.33	1.33	400	400	
Pangasinan.....	.66	.64	.67	.64	30,200	25,800	+ 12
Rizal.....	.89	.78	1.23	.96	2,100	1,800	+ 16
Romblon.....	.62	.60	1.00	1.00	500	400	+ 25
Samar.....	.85	.97	1.17	1.39	2,800	3,900	- 28
Sorsogon.....	.97	.86	1.05	.88	3,600	2,800	+ 14
Sulu.....	1.17	1.25	.67	.40	400	200	+100
Surigao.....	1.00	.89	1.00	1.00	1,000	800	+ 25
Tarlac.....	.60	.53	.68	.65	1,500	1,300	+ 15
Taybas.....	.66	.47	.63	.69	3,600	3,100	+ 16
Zambales.....	.41	.67	.81	.82	1,300	1,400	- 7
Zamboanga.....	1.17	1.03	.63	.67	4,700	4,600	+ 2
Philippine Islands.....	.91	.98	.71	.69	835,300	806,900	+ 3

